

ANNUAL REPORT OF THE COMMISSIONERS OF THE DISTRICT OF COLUMBIA

FISCAL YEAR ENDED JUNE 30, 1924

Vol. II ENGINEER DEPARTMENT REPORTS



GOVERNMENT PRINTING OFFICE
WASHINGTON
1924

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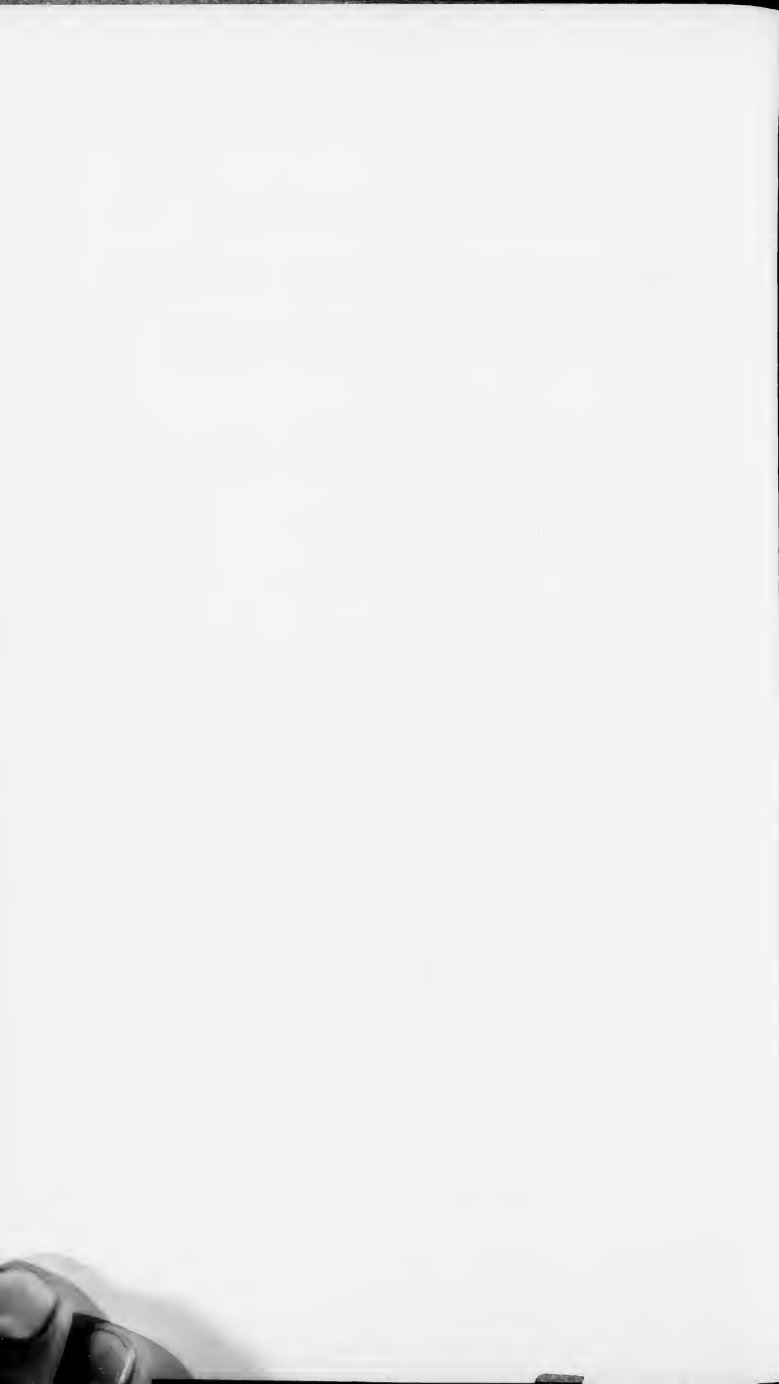


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ORGANIZATION OF THE ENGINEER DEPARTMENT, DISTRICT OF COLUMBIA

Maj. J. F. BELL, *Corps of Engineers, United States Army, Engineer Commissioner.*
Maj. R. A. WHEELER, *Corps of Engineers, United States Army, Assistant.*
Maj. W. H. HOLCOMBE, *Corps of Engineers, United States Army, Assistant.*
Capt. JOHN E. WOOD, *Corps of Engineers, United States Army, Assistant.*

UNDER THE IMMEDIATE SUPERVISION OF THE ENGINEER COMMISSIONER

ZONING COMMISSION:

Maj. R. A. WHEELER, *Executive Officer.*

STREET AND ALLEY CLEANING, COLLECTION OF GARBAGE, ETC.:

MORRIS HACKER, *Supervisor.*

T. L. COSTIGAN, *Superintendent of Street Cleaning.*

RECORD DIVISION:

ROLAND M. BRENNAN, *Chief Clerk.*

WHARF COMMITTEE:

ROLAND M. BRENNAN, *Chairman.*

D. E. MCCOMB, *Engineer of Bridges.*

H. J. R. LOHMAN, *Harbor Master.*

CONTRACT BOARD:

ROLAND M. BRENNAN, *Chairman.*

DISTRICT BUILDING:

Capt. JOHN E. WOOD, *Superintendent.*

UNDER THE IMMEDIATE SUPERVISION OF MAJOR WHEELER

HIGHWAYS (STREETS, ROADS, BRIDGES, ETC.):

C. B. HUNT, *Engineer of Highways.*

J. W. DARE, *Assistant Engineer of Highways.*

Sidewalks and alleys—

H. N. MOSS, *Superintendent of Streets.*

Construction and maintenance of suburban roads—

L. R. GRAILL, *Superintendent of Suburban Roads.*

Construction and care of bridges—

D. E. MCCOMB, *Engineer of Bridges.*

Engineer Department stables—

BART J. LYNCH, *Superintendent.*

Asphalts and cements—

V. CLEAVER, *Inspector of Asphalt and Cement.*

TREES AND PARKINGS:

CLIFFORD LANHAM, *Superintendent of Trees and Parkings.*

SURVEYOR'S OFFICE (INCLUDING STREET EXTENSIONS):

M. C. HAZEN, *Surveyor.*

BUILDING INSPECTION:

J. W. OEHMANN, *Inspector of Buildings.*

Permits, Engineer Department—

H. M. WOODWARD, *Permit Clerk.*

Plumbing board—

LOUIS CONRADIS.

JAMES S. O'HAGAN.

SAMUEL TAPP.

Board of examiners of steam engineers—

E. F. VERMILLION.

H. BOESCH.

W. I. EVANS.

BOARD FOR CONDEMNATION OF INSANITARY BUILDINGS:

Maj. R. A. WHEELER, *Assistant to the Engineer Commissioner.*

Dr. W. C. FOWLER, *Health Officer.*

J. W. OEHMANN, *Inspector of Buildings.*

PLUMBING INSPECTION:

A. R. MCGONEGAL, *Inspector of Plumbing.*

UNDER THE IMMEDIATE SUPERVISION OF MAJOR HOLCOMBE

PURCHASE OF LAND.

MOTOR TRANSPORT.

PROPERTY MAINTENANCE AND UTILIZATION.

AUTOMOBILE BOARD.

UNDER THE IMMEDIATE SUPERVISION OF CAPTAIN WOOD

WATER DEPARTMENT:

J. S. GARLAND, *Superintendent.*

Water rates—

G. W. WALLACE, *Water Registrar.*

SEWER CONSTRUCTION AND MAINTENANCE:

J. B. GORDON, *Sanitary Engineer.*

ELECTRICAL DEPARTMENT:

WARREN B. HADLEY, *Electrical Engineer.*

MUNICIPAL ARCHITECT:

ALBERT L. HARRIS.

Repairs to Municipal Buildings—

HENRY STOREY, *Superintendent of Repairs.*

MUNICIPAL GARAGE:

E. P. BROOKE, *in charge.*

CHARLES N. EMMONS, *Superintendent.*

EXTRACT FROM REPORT OF THE COMMISSIONERS OF THE DISTRICT OF COLUMBIA FOR THE FISCAL YEAR ENDED JUNE 30, 1924

OFFICE OF THE COMMISSIONERS
OF THE DISTRICT OF COLUMBIA,
Washington, December 1, 1924.

*To the Senate and House of Representatives of the United States of
America in Congress assembled:*

The Commissioners of the District of Columbia herewith submit for the information of Congress, pursuant to the requirements of section 12 of an act providing a permanent form of government for the District of Columbia, approved June 11, 1878 (20 U. S. Stats. 108), a report of the official doings of that government for the fiscal year ended June 30, 1924.

* * * * *

ROADWAY PAVEMENTS

The accompanying table shows the area in square yards of new roadway pavements laid and old roadway pavements resurfaced during the year, with the total in square yards and miles of the various kinds of pavements at the close of the fiscal year.

Comparative statement showing character and extent of roadway pavements

| | Existing amount on June 30, 1923 | | New pave- ment laid during year (square yards) | Pavements replaced during year (square yards) | Existing amount on June 30, 1924 | |
|---|-------------------------------------|---------|---|--|-------------------------------------|---------|
| | Square yards | Miles | | | Square yards | Miles |
| Sheet asphalt and coal tar..... | 3, 443, 476 | 183. 36 | | | 3, 443, 476 | 183. 36 |
| Asphalt blocks..... | 612, 205 | 31. 11 | | | 612, 205 | 31. 11 |
| Asphaltic surface..... | 44, 996 | 3. 12 | 83, 043 | | 128, 039 | 9. 64 |
| Durax blocks..... | 17, 968 | 0. 57 | | | 17, 968 | 0. 57 |
| Asphaltic or bituminous con- crete: | | | | | | |
| On concrete base..... | 78, 708 | 4. 58 | | | 78, 708 | 4. 58 |
| On stone base..... | 46, 206 | 2. 47 | | ¹ 7, 297 | 38, 909 | 2. 16 |
| Cement concrete..... | 304, 211 | 16. 35 | 151, 884 | | 456, 095 | 23. 91 |
| Granite block and rubble..... | 334, 605 | 18. 35 | | ² 16, 643 | 317, 962 | 17. 47 |
| Vitrified block..... | 17, 390 | 1. 04 | | | 17, 390 | 1. 04 |
| Cobble..... | 36, 374 | 1. 52 | | | 36, 374 | 1. 52 |
| Macadam (estimated)..... | 1, 836, 226 | 117. 76 | | ¹ 66, 400 1 82, 728 | 1, 687, 098 | 108. 20 |
| Gravel and unimproved (trav- eled)..... | | 156. 51 | | | | 160. 39 |
| Gutters on asphalt streets..... | 242, 917 | | 671 | | 243, 588 | |
| Pavements maintained by street railways..... | 568, 034 | | 48, 773 | | 616, 807 | |
| Gutters on asphaltic concrete streets..... | 10, 590 | | | ¹ 743 | 9, 847 | |
| Total..... | 7, 593, 906 | 536. 74 | 284, 371 | 173, 811 | 7, 704, 466 | 543. 95 |

¹ Cement concrete.

² Asphaltic surface.

The sums appropriated for expenditures during the year under this head were as follows:

| | |
|--|-----------|
| For repairing old roadway pavements, including asphalt resurfacing | \$550,000 |
| For paving new roadways | 573,300 |
| For repair of suburban roads | 275,000 |
| For grading streets, alleys, and roads | 35,000 |

The prices paid under contracts for roadway pavements during the year were as follows:

| | |
|---|--------|
| Laying sheet-asphalt pavement (2½-inch asphalt surface, 2-inch binder, before compression) with 6-inch concrete base: | |
| Class A—Natural pitch lake asphalt | \$2.72 |
| Class B—A reduced oil asphalt | 2.57 |
| Laying vitrified block with 6-inch concrete base | 4.00 |
| Laying 6-inch concrete roadway | 1.81 |
| Laying 7-inch concrete roadway | 2.02 |

The unit cost of concrete roadway pavements was slightly less than for the preceding year. A number of main suburban roads were substantially improved by new roadway pavements, but the rapid development of suburban property was not adequately met by improvement of abutting streets.

Asphalt roadway pavements were resurfaced to an extent of a fraction only of their real needs, their deterioration being inadequately met by minor repairs. A considerable yardage of asphalt resurfacing (Bessonite) over heavily traveled macadam and a few granite block streets was laid with expectation of reduced upkeep cost in addition to improvement in the use of the streets by traffic.

Due to the increase in suburban development and garage construction the demand for alley pavements has increased until it is beyond our ability to respond. In a partial effort to meet it, sidewalk construction, which is chargeable to the same fund, has been unduly curtailed.

The repairing of cuts in pavements made by and charged to deposits of corporations and individuals aggregated over 60,000 items with a total area of over 80,000 square yards, costing about \$370,000 to repair.

At the end of the year all work of construction and maintenance of pavements that was provided for had been completed except a very few items intentionally retarded.

SUBURBAN STREETS AND ROADS

The work of repairs to suburban roads consisted principally of maintenance by patching with bituminous mixture and by surface treatment. The cost of the former was about \$35,000; 135,000 gallons of oil and tar were applied and about 700,000 square yards of surface was treated at about 5 cents per square yard, a substantial reduction resulting from the introduction of mixing and loading machinery. Large use was made of soft-coal cinders in addition to old street material and household ashes for surfacing the many newly opened streets. Over 21,000 cubic yards of cinders were so applied and excellent results obtained. Over 7 miles of such roadways were constructed.

MUNICIPAL ASPHALT PLANT

The District of Columbia has operated a portable municipal asphalt plant in the repair of asphalt pavements and bituminous macadam roadways for the past 13 years. During the year 1924 the plant was operated for a period of 239 days, with a total output of 206,060 cubic feet of material, or an average daily output of 862 cubic feet.

The details of the cost of the operation of the plant are contained in the report of the engineer of highways.

SIDEWALKS AND ALLEYS

The fund for paving alleys and sidewalks abutting private property amounted to \$285,000, and for sidewalks abutting Government property \$15,000. Cement concrete was used almost exclusively. The contract prices for sidewalks were considerably higher than in the recent past, being \$2.31 per square yard for those adjacent to paved and \$2.45 per square yard for those adjacent to unpaved roadways; the latter being significantly in more remote localities.

BRIDGES

The expenditure for construction and repair of bridges amounted to \$36,507.75, and the appropriations for the maintenance of the Anacostia and Highway Bridges were expended practically in full.

P Street Bridge across Rock Creek was refloored.

Livingston Road Bridge over Oxen Run and Minnesota Avenue Bridge between Hunt Place and Deane Avenue were rebuilt.

The superstructure of P Street Bridge across Rock Creek was extensively repaired.

The asphalt roadway of Bennings Road Bridge across the Eastern Branch was resurfaced.

ENGINEER STABLES

This activity rendered service at a substantial saving over the cost of hired teams. About 52 head of stock were maintained.

INSPECTION OF ASPHALTS AND CEMENTS

Through this office, tests, chemical and physical, are made of materials used in street and road improvements, likewise all cements used in building and in sewer construction, fuel oils used at the municipal asphalt plant, and miscellaneous tests of any materials requiring such. Tests made during the year were: Asphalt materials, 971; oils, 12; tars, 2; sand, 115; gravel, 142; stone, 57; limestone dust, 57; cements, 9,630; representing 96,306 barrels; and miscellaneous materials, 540; total, 11,526.

Samples of asphalt tested represent 1,625 tons, 961 tons used by contractors for laying roadways and 664 tons used at municipal asphalt plant in producing paving materials.

Of the material tested there were rejected 2,155 cubic yards of sand and 2,400 cubic yards of gravel.

SURVEYOR'S OFFICE

A division of the work of this office may be made into three classes, as follows:

1. Work performed for private parties, for which fees are charged according to a regular schedule of fees prescribed by the commissioners and estimates made by the surveyor's office.

2. Work performed for the various departments of the District and Federal Government. No fees are charged for this class of work.

3. Surveys, descriptions, and reports on condemnation cases for streets, alleys, parks, etc.

The work for the past fiscal year has, on an average, been about equal to that performed during the year previous, these two years showing an increase over the years preceding them.

HIGHWAY PLAN

The appropriation of \$2,000 for the purpose of marking on the ground the permanent system of highways for the District of Columbia has been used to good advantage, and many street lines have been marked at street intersections in connection with this work. Approximately 150 stone monuments were planted, and some of the prominent streets marked were: Central Avenue from Benning Road to Southern Avenue SE.; Fourteenth Street, through Walter Reed Hospital grounds; Belt Road from Chesapeake Street to Harrison Street NW.; Broad Branch Road from Rock Creek Park to the District line; and Canal Road at various points along its line.

This system of streets, known as the street-extension plan, is in accordance with a plan which was made many years ago under an act of Congress providing for the extension of streets in the District of Columbia in an orderly, comprehensive manner. This law is believed to have been one of the most important and advantageous for the proper development of real estate in a systematic manner into blocks and lots that has ever been placed upon the statute books. The plan, which is known as "The highway plan," can not be changed or amended in any manner except upon approval of a highway commission composed of the Secretary of War, the Secretary of the Interior, and the Chief of Engineers, United States Army, and all new subdivisions must conform to this plan.

SUBDIVISIONS

There has been the usual activity in subdivision work outside of the original city limits, and many subdivisions of large tracts of land have been recorded. In all these cases it is necessary to mark the corners of all blocks in the new subdivisions with substantial stone monuments, and fees collected for subdivisions include also the cost of survey work, making computations and plats, and setting corner stones.

CONDEMNATION CASES

During the past fiscal year there have been before the courts 36 condemnation cases for streets, parks, etc., and 12 alley cases. Of these 48 cases, 18 were confirmed by the court, some being dismissed and others carried over to the present fiscal year.

The total of damages awarded by the juries in the cases confirmed amounted to \$139,823.15 in all—\$118,020.69 for streets, parks, etc., and \$21,802.46 for alleys. These figures will show the magnitude of this condemnation work.

Some difficulty has been experienced in prosecuting condemnation cases to a conclusion on account of the jurors not being able to find benefits equal to the amount of damages and court costs, as required by law, and some provisions should be made whereby such cases can be successfully carried through the courts and the cases pushed to a conclusion.

PARKS

During the past year a commission, known as the National Capital Park Commission, was created by an act of Congress, whose function it is to go into the important question of parks and determine just what areas should be acquired for parks and to take the necessary steps for their acquisition.

The surveyor's office has recently recorded a large park area donated to the District by Mr. C. C. Glover, which is known as the Glover Parkway and Children's Playground. This park comprises a large area along Foundry Branch, on both sides of Arizona Avenue, between Massachusetts Avenue and Reservoir Street NW., containing in all approximately 77½ acres.

This is a valuable donation and constitutes quite an addition to the park system of the District, and the donor, Mr. Glover, is to be commended for the public spirited and generous motives which prompted the gift of this valuable area to the District.

A number of small park areas at street intersections were acquired by the District during the past year.

During the past year a movement was started to acquire the subdivision of Reno for park, school, playground, water, and street purposes, the subdivision being ideally located for this purpose, being in the center of what is to be a great business and residential area.

This is a very old subdivision, made before the highway plan was adopted, and is out of harmony with this plan, being based on an irregular, ill-devised plan, making an objectionable subdivision. The only way it can be obliterated so that it can be developed in harmony with the surrounding territory would be to condemn the entire area, composed of about 52 acres.

Besides the advantages accruing from the elimination of this subdivision, there are other considerations which are of interest. It has an elevation of about 420 feet, and is the site of old Fort Reno, one of the old Civil War defenses, which would make it also a site of historical interest. The old fort could be restored within the park area.

Additional land is needed for the extension of a high service reservoir, and if this land is acquired it could be well utilized for this purpose. The public-school authorities also are anxious to establish a junior high school and athletic field here if it can be acquired.

A committee of prominent citizens has already indorsed this proposition.

TREES AND PARKING

The number of trees planted along the curbs on the streets in the District of Columbia at the close of the fiscal year was 104,294. One thousand and thirty-four young trees were planted in their permanent positions during the fiscal year, a net increase of 976 over the previous year.

The planting during the year had to be curtailed to some extent due to the fact that the trees in the nurseries were too small to be transplanted to the streets. The widening of Rhode Island Avenue NE. between Twenty-fourth and Twenty-eighth Streets, necessitated the change in the location of 43 elm trees on this thoroughfare.

For various reasons 1,552 trees were removed from public space during the year.

The cost of removing 1,165 trees was paid from the appropriation for the trees and parkings division, and it amounted to \$4,233.16.

The cost of removing the other trees was paid from the appropriations for other departments and whole cost deposits.

Trees to the number of 9,610 were sprayed for the extermination of leaf-eating insects.

The young trees in the Fort Dupont and Poplar Point nurseries are doing very well. These sites are well stocked with those varieties that are considered best for street planting. There were 1,045 red oak, 561 white oak, 570 Norway maple, 5 sycamore maple, 62 elm, and 26 sycamore trees transplanted from the seeds beds to the nursery rows at Fort Dupont nursery.

Transplantings at the Poplar Point nursery included 798 red oak, 213 elm, 184 poplar, 162 acacia, and 114 Norway maple.

Trees trimmed during the year numbered 10,884, at a cost of \$6,249.37.

The removal of weeds from the uninclosed parkings along the streets was undertaken at a cost of \$2,528.67, and \$177.09 was expended for the miscellaneous care of the small reservations under the control of the Commissioners of the District of Columbia. Permits to the number of 1,005 were issued affecting the grade of the parking in connection with building operations in the residential districts during the year.

It is believed that the condition of the shade trees of Washington is, generally speaking, the best that can be expected when the adverse conditions attending their growth, health, and life are considered.

COLLECTION AND DISPOSAL OF CITY REFUSE

The amount of money turned into the Treasury from grease and salvaged material totaled \$302,642.54. Considering the market prices at which these products were forced to be sold, the total is very satisfactory and it constitutes a substantial sum toward the upkeep of the city.

The total expense of collecting and disposing of all the city refuse was \$821,155.35, so that the net cost of this work was \$518,512.81.

It is to be noted that the wage scale of laborers and mechanics was substantially increased in December of 1923, so that the unit cost of all work from December on was materially increased.

The garbage-disposal plant produced 3,607,600 pounds of grease from 75,089 tons of garbage collected, compared with a production in the previous year of 3,451,859 pounds from 80,014 tons. The expense of the reduction, including the freight charges on the raw garbage from the transfer station in Washington to the plant at Cherry Hill and capital expenditures for improvements to plant, was \$167,953.70, so that this plant virtually operated at a profit of \$28,665.71.

The trash plant cost to operate \$95,048.71. The excess of receipts over expenditures at this plant was \$6,692.87. Included in the expenditures is an item of \$9,000 for the purchase of 6 acres of land adjoining this plant.

By act of Congress the commissioners were prohibited from letting any further contract for the collection and disposal of dead animals after July 1, 1923. This work, involving the collection of 34,764 dead animals, was done by the District at a gross cost of \$6,886.81. Owing to a severe fire at the private rendering plant where these animals were disposed of, it was impossible to recover for sale the hides of 154 large animals which were buried at a great expense to the District and which materially increased the cost of this work.

The ashes from private householders were collected and disposed of at a cost of \$131,589.11. Much of this material was used with benefit as a temporary surfacing to newly opened streets and alleys.

The amount expended for dust prevention, cleaning of streets and alleys, and the removal of snow was \$392,185.86. It is to be noted that about 96,000,000 square yards more were cleaned by hand patrol during the course of the year than in the previous year. This means about 352,000 square yards more cleaned each day and is to be accounted for by reason of new pavement laid during the year.

BUILDING OPERATIONS

The estimated value of building operations during the year was \$39,403,207, a decrease of \$18,235,431 compared with the fiscal year 1923, which was \$57,638,638. This difference was due to the fact that 1923 was an abnormally active year, owing to the feverish rush to meet the demand for houses which had existed since before the end of the war. This extraordinary demand having been satisfied, operations during 1924 reflect the normal and stable status of the District, which may be expected to continue in the years to come, the volume gradually increasing in proportion to the augmentation in population.

The number of permits was 11,446, or 745 less than the previous year. Business buildings numbered 852, a decrease of 85. New buildings totaled 3,012, or 466 under 1923. The number of apartment houses was the same, 81, while the number of dwellings receded from 2,460 to 2,079, a difference of 381.

In 1923 there were issued 2,585 conforming certificates of occupancy under the zoning regulations as against 3,205 this year, an increase of 620 in 1924. Nonconforming certificates reached 543 in 1924; in 1923 the number was 118, a difference of 425. The fees for issuance of certificates amounted to \$5,600. In 1923, \$3,523.50 was realized, \$2,074.50 less than in 1924.

CONSTRUCTION OF MUNICIPAL BUILDINGS

During the year 17 buildings were under construction, as follows: A four-room building to replace the Smothers School, which was completed September 24, 1923; an eight-room addition to the Lovejoy School, completed October 16, 1923; an eight-room addition to the Garrison School, completed November 30, 1923; the George Bancroft School, of eight rooms, completed August 11, 1924; the Langley Junior High School, completed January 4, 1924; the Macfarland Junior High School, completed January 4, 1924; police precinct station No. 12, completed October 23, 1923; police precinct station No. 7, completed October 29, 1923; police precinct station No. 9, completed October 29, 1923; a third-story addition to the Thomson School, completed January 17, 1924; an addition to the Armstrong Manual Training School, which will be completed about January 19, 1925; an addition to the Western High School, which will be completed about February 26, 1925; the Mount Pleasant Branch Library, which will be completed about February 18, 1925; a nurses' home at the tuberculosis hospital, which will be completed September 25, 1924; a head house at the wharf leased by the Norfolk & Washington Steamboat Co., to replace the building destroyed by fire, which will be completed September 2, 1924; the Raymond School, of eight rooms, which will be completed about December 22, 1924; the Janney School, of eight rooms, which will be completed about May 22, 1925. Additions and alterations to engine house No. 16 were in progress.

Preliminary studies for the home for the feeble-minded have been made and a general program arranged.

Preliminary studies for the general layout of the Gallinger Municipal Hospital have been made, based on the advice of Doctor Goldwater. The scheme proposed retains the domestic building, for which the foundations were put in some time ago.

Besides the preparation of plans and specifications for the above-mentioned buildings, plans and specifications for about 50 other pieces of work, such as heating systems in engine houses, police stations, and school buildings, and for equipment for various buildings, were prepared in this office, amounting to \$145,052. The contracts entered into by this office for the fiscal year amounted to a total of \$1,542,029.

REPAIRS TO MUNICIPAL BUILDINGS

All municipal buildings are kept in repair under the direction of the municipal architect. During the year only such repairs were made as would prevent further deterioration of the structures, as the continued high prices of labor and materials and the inadequacy of available funds prevented a more extensive undertaking in the repair work.

WORKHOUSE AND REFORMATORY

Good progress was made during the year in the construction work at the District workhouse and reformatory, consisting mainly in the erection of permanent buildings and the continuance of the construction of the industrial railroad. A considerable amount of repair

work was performed at both institutions. At the reformatory 14 building operations were under way during the year, consisting of 5 shops, 4 dormitories, 2 disciplinary dormitories, 1 washhouse, 1 boiler house, and 1 dining hall and kitchen. The shops, 2 dormitories, the 2 disciplinary dormitories, and the boiler house were practically completed by June 30, 1924. The balance of this construction work will be completed within a few months. The steam-heating mains have been installed in part of the tunnel system, and heat has been turned on in three of the shops.

During the year a bridge was constructed over the main highway and about 4,600 feet of track laid for the industrial railroad. Work is progressing rapidly on the construction of this road, and before winter it should be possible to haul all necessary building material over it to the new reformatory site.

DISTRICT BUILDING

The District Building consumed 2,014 tons of coal, which averaged 10.37 per cent ash; ashes totaling 577 cubic yards were removed at a cost of \$288.50. The total number of kilowatt hours generated was 527,824; of this there was used for lighting 383,633; for elevators 45,110, and for motors 99,181. Repairs were made to the power plant at a total cost of \$3,048. It will probably be necessary within the present fiscal year to make additional repairs to the power plant at an approximate cost of \$4,000. In addition to minor repairs throughout the building the carpentry and paint shop built new partitions and counters, moved counters, refinished floors, painted walls in 33 rooms, the latter at a cost of \$2,277.71, and made alterations for the convenience of many departments. The photograph shop did blue printing and photography totaling \$3,456.67. Attention is again called to the congested condition of many of the departments and request that steps be taken to find office space outside the building for one or two departments to relieve this condition.

MUNICIPAL GARAGE

There were 40 automobiles maintained and kept in running order during the fiscal year ended June 30, 1924. The garage was kept open night and day for urgent and necessary transportation. All machines were washed and supplied with gasoline and oil by the night force, who also acted as watchmen. A mechanical and laboring force consisting of eight men made all necessary repairs and operated automobiles for the various departments which were without automobiles or drivers.

Operating cost for the maintenance of the 40 automobiles, including gasoline, oil, tires, labor, and miscellaneous supplies, amounted to \$17,895.61, or an average of \$447.48 for each car, or \$0.0574 per mile.

The cost of repair parts used in the cars was \$2,460.41, or an average of \$61.51 for each car, or \$0.0151 per mile.

Total mileage made by the automobiles amounted to 233,066 miles, or an average of 5,826.5 miles per car.

PLUMBING AND PLUMBING INSPECTION

The plumbing inspection division made 44,657 inspections during the year. About half of these were inspections of plumbing work in new buildings; about one-quarter were inspections of plumbing work in old buildings; and the balance inspections on account of complaints of insanitary plumbing, leaky roofs, and defective rain leaders. A large percentage of these complaint cases originated in other divisions of the District government.

During the year 22 warrants were obtained against unlicensed plumbers and others for violation of the plumbing regulations. These prosecutions netted a total in police-court fines of \$260. No case taken to court by the plumbing division was decided adversely.

The plumbing board held 24 meetings and examined 84 applicants, of whom 12 passed and were granted master plumber's license. At the close of the year there were 259 registered plumbers and 7 registered gas fitters.

PUBLIC CONVENIENCE STATIONS

There were in operation throughout the year four convenience stations, open 18 hours daily, and during the year the attendants reported a total patronage for all stations of over 13,000,000. The cash receipts from use of pay compartments, etc., totaled \$7,791.99, this being about 35 per cent of the actual cost of the operation of the stations.

INSPECTION OF STEAM BOILERS

The number of steam boilers inspected by the inspector of steam boilers during the year was 450, including 36 belonging to the District of Columbia. Ten boilers were condemned as unfit for further use. The compensation of the inspector of steam boilers is paid from fees collected from private owners of boilers. The total amount of these reported by that official was \$2,250, and the expense of inspection \$310, leaving a net compensation of \$1,940 for the inspector.

EXAMINATION OF STEAM ENGINEERS

The board of examiners of steam engineers held 51 meetings and examined 199 applicants, of whom 107 were found competent and 92 incompetent.

STREET LIGHTING

There are 21,823 public lamps of all kinds in the avenues, streets, alleys, etc., under the jurisdiction of the Commissioners of the District of Columbia. Of these 11,519 are gas and 10,304 electric; of the gas lamps 10,820 are single-burner mantle, 310 are double-burner mantle, and 389 are small flat flame, for designation purposes; of the electric 819 are magnetite arc, 9,253 are incandescent, ranging from 60 to 600 candlepower each (91 per cent of 60 and 100), and 232 are incandescent of about 10 candlepower, for "designation."

There was a net increase during the year of 567 lamps.

The increase in aggregate candlepower of the street-lighting system under the jurisdiction of the commissioners is from approximately 1,848,300 to approximately 1,929,900, about 4.4 per cent.

The lighting of Pennsylvania Avenue, Seventeenth Street NW. to Washington Circle, was improved by the addition of 20 arc lamps, and the vicinity of Fourteenth Street and Park Road by the addition of 6 of the same type; 75 250-candlepower lamps replaced 60 and 100 candlepower lamps on Rhode Island Avenue NE.; the net increase in incandescent lamps, upward of 300, was due to extension and improvement, largely in the suburban territory. The same is true of a net increase of upward of 200 gas lamps.

The street lighting as a whole is distinctly inadequate. A comprehensive plan of material improvement has been formulated, including the design of ornamental posts of greater height, to admit of the effective use of larger lighting units to produce much improved lighting at relatively less added cost. An application of the plan on small scale is about to be made.

The situation with respect to the several suits at law against certain railway companies for recovery of sums expended in maintaining lights adjacent to their respective rights of way remains essentially as stated in 1920 and succeeding reports, with accretion of sums claimed.

SIGNAL SYSTEMS—FIRE-ALARM TELEGRAPH, POLICE-PATROL SIGNAL, AND TELEPHONE SERVICE

There were 806 fire-alarm boxes in service at the end of the year, 690 on underground and 116 on overhead wires, a net increase of 24 over the preceding year: 2,670 box and local fire alarms (exclusive of "additional" alarms) were received and transmitted during the year, of which 278 were false alarms. The number of box circuits in commission was increased by 4, to 39, and redistribution made, further relieving overloaded circuits.

There were 489 police-patrol boxes in service at the end of the year, 390 on underground and 99 on overhead wires, a decrease of 1 compared with the preceding year; 2 were added, 3 discontinued, and 62 were changed as to station connection, by reason of the institution of twelfth precinct and incident change of boundaries of other precincts.

There were 1,625 telephones connected to the District system at the end of the year, and 28 in use as portable sets by fire and electrical departments, an increase of 75 in the year.

There were 2,692 cells of storage battery in service on fire-alarm, police-patrol, and local circuits at the end of the year, an increase of 518, due to increase in number of fire-alarm circuits.

There were in service in the composite signals system (fire-alarm, police, and telephone) on June 30, 1924, a grand total of 7,436 miles of conductor, of which 7,344 miles were underground and 92 miles overhead. Reserve capacity of cable is below requirement of demand and below safe emergency provision. Provision for expansion is again presented as an urgent requirement.

ELECTRICAL INSPECTION

The total number of permits issued for installation of wires and apparatus for electric light, heat, and power purposes, on private

premises, not including plants of public service companies, during the year, was 9,495, representing approximately 16,868 kilowatts capacity of utilization equipment, compared with 9,791 permits representing 9,271 kilowatts in the preceding year. The total sum of fees paid for permits was \$16,264, compared with \$16,164. The annual increase of service to be rendered continues, and neither adequate nor satisfactory service can be rendered with the number of inspectors engaged.

Supervision was exercised over the erection, taking down, and moving of poles, and of the stringing of overhead wires, in streets and other public spaces. The total of recorded wire-supporting poles in the District at the end of the year was 23,056, a net increase of 1,097, compared with 1,054 and 912 in the next two preceding years, indicative of continuance of activity in suburban development. There has been an increase of 3 in the number of telephone poles in streets and avenues within the "prescribed area" of the act of Congress regulating the use of telephone wires.

MISCELLANEOUS

The electrical department has cooperated with the municipal architect and other District officers, consulting and counseling, preparing plans, specifications, and estimates, and supervising electrical work in municipal properties.

HARBOR FRONT

The actual water frontage of the District of Columbia devoted to commerce, with the exception of canals, is about 2 miles. The total available water front is 18 miles, of which about 8 miles is set aside for parks and for other purposes of the United States. The largest amount of wharf property under the control of the commissioners is along the Washington Channel.

The new harbor police station and dock, the dock of the fire boat, the District morgue, the municipal fish wharves and market, and the District workhouse and sand wharves are located on the Washington Channel between N and Thirteenth Streets. The balance of the frontage is leased by steamboat companies, boathouses, lumber dealers, etc.

A fire occurred at the wharf of the Norfolk & Washington Steamboat Co. in January, 1924, damaging the wharf property to the extent of about \$56,000. The wharf has since been rebuilt. Steel sheds have been erected in place of the wooden structures, a one-story head house of semireproof material has been erected, and the decking of the wharf has been surfaced with a layer of asphalt on metal lathe. With these precautions, it is hoped that there will be no repetition of the disastrous fires which have occurred at this wharf.

The permanent development and improvement of the water front along the Washington Channel between Washington Barracks and Fourteenth Street SW. is a matter which should be given very serious consideration.

SEWERAGE AND SEWAGE-DISPOSAL SYSTEMS

The construction and maintenance of the sewerage system and the sewage-disposal system of the District of Columbia is placed under a division in charge of the sanitary engineer.

The length of main and pipe sewers constructed during the year was 15.25 miles. The total length of main and pipe sewers on June 30, 1924, was 791.23 miles, of which 156.04 miles are main sewers and 635.19 miles are pipe sewers. In addition to the above new sewer work, 101 storm-water catch basins were constructed during the year, bringing the total number to 5,984.

There was expended during the year on new extensions of the sewerage system the sum of \$630,062.01, and on the sewage-disposal system \$40,000. The total cost of the sewerage system to June 30, 1924, was \$16,432,298.47, and of the sewage-disposal system to the same date was \$6,015,232.96, making a total cost of the complete system to June 30, 1924, of \$22,447,531.43.

The main sewerage pumping station and the three substations were in continuous operation throughout the year handling the sewage of practically the entire District. In addition, the main station pumped storm water from the 900-acre low-level area flanking Pennsylvania Avenue between the Peace Monument and Fifteenth Street. At the main station the combined pumpage of sewage and storm water amounted to 25,238,327,500 gallons during the year. The Poplar Point substation pumped 739,918,571 gallons, the Rock Creek substation 448,596,000 gallons, and Woodridge substation 18,820,757 gallons of sewage during the year. Eliminating the Rock Creek and Woodridge substations, which deliver their discharge to the main station, the above would indicate a mean daily pumpage of 71,173,277 gallons. The coal consumption at the main station during the year was 4,013.36 tons, of which about 8 per cent should be charged off to cover bunker loss, use by incinerator, and other miscellaneous uses.

On June 3, 1924, an agreement was formally entered into between the Commissioners of the District of Columbia and the Washington Suburban Sanitary Commission as to a reciprocal provision for the connection of the sewerage systems in the State of Maryland bordering the District of Columbia and those of the District of Columbia. This agreement was in accordance with act of Congress approved September 1, 1916. No sewage connections to or from Maryland have as yet been made under this agreement.

Under the 1919 District appropriation bill there was appropriated the sum of \$60,000 for the purchase or condemnation of the necessary land for a sewage-treatment works. The site selected for these works is a portion of the Bellevue tract in the vicinity of the Home for the Aged and Infirm. During the fiscal year 1919, 34.6 acres of land was acquired, and after long court delays there was finally consummated during the fiscal year 1924 the purchase of two additional parcels of land aggregating 33.18 acres. The sum paid for these two latter tracts was \$29,147.52. It is felt that continued efforts should be made to acquire the 10-acre parcel 253/2, as well as reach an agreement with the Baltimore & Ohio Railroad to have them relocate their trackage now traversing District property recently acquired for these sewage-treatment purposes. The time can

not be far distant when some preliminary treatment must be given the sewage of Washington, rather than discharge it, as at present, in its raw state into the Potomac River.

As the result of a more liberal appropriation, the division was better able to meet the demand for service sewers than during the year 1923, although the demand for this class of sewers is still considerably greater than the available appropriations will permit constructing. At the close of 1924 the service sewers ordered and not built amounted to \$115,304. The appropriations made available for interceptors of the sewage-disposal system are, it is felt, still decidedly inadequate.

There has been prepared in the office of the sanitary engineer a tentative five-year construction program, with the view of striving to bring the sewerage system of the District to date by June 30, 1929. Under this program there would be required an annual construction appropriation during the next four years of approximately \$1,800,000. In comparison with these needs, it might be mentioned that the construction appropriations for the fiscal year 1925 are but \$805,000. The above-estimated needs for sewer construction are in addition to any sums which might be required in this period for a sewage-treatment plant.

WATER MAINS

During the year 75,611 feet, or 14.30 miles, of water mains were laid, a decrease of 1.6 miles over length laid last year, making the total length of mains now in service 688 miles, at an aggregate cost of \$5,117,239.61, paid from water department funds.

WATER CONSUMPTION

The mean daily consumption for the fiscal year was 64,069,344 gallons, giving a mean daily per capita consumption of 131.57 gallons, estimated on a population of 487,000.

The total pumpage for the year was 12,300,606,110 gallons.

The total coal burned was 8,187 tons.

The cost of operating pumps for the year was \$123,878.31, as against \$115,748.16 for fiscal year 1923; thus making the cost of pumping 1,000,000 gallons of water into the mains \$10.01, as against \$9.58 for the preceding year, due to the increased cost of labor.

Underground leakage found and stopped during the fiscal year aggregated a saving of 88,230 gallons daily.

The financial statement of water revenues and expenditures will be found in the report of the auditor.

WATER METERS

During the year 2,653 new meters were installed, and 70,181, or 87.41 per cent of the total, water services are now metered.

Very respectfully,

CUNO H. RUDOLPH,
JAMES F. OYSTER,
J. F. BELL,

Commissioners of the District of Columbia.

REPORT OF THE OPERATIONS OF THE ENGINEER DEPARTMENT OF THE DISTRICT OF COLUMBIA

REPORT OF ENGINEER OF HIGHWAYS

WASHINGTON, D. C., *August 1, 1924.*

SIR: I have the honor to submit the following report of the operations of the engineer of highways for the fiscal year ended June 30, 1924.

The total amount of funds appropriated by Congress and deposited by corporations and others for disbursement by the highway division aggregated \$2,186,614.66, of which \$285,000 was for paving sidewalks and alleys in all parts of the District; \$573,300 for paving new roadways; \$550,000 for repairing old roadway pavements, including asphalt resurfacing; \$275,000 for repair of suburban roads; \$30,000 for construction and repair of bridges and viaducts; \$35,000 for grading streets and avenues; \$15,000 for sidewalks and curbs around Government reservations, buildings, and parks; \$50,000 for paving roadways under the permit system; while \$373,314.66 was spent in repairing pavements disturbed by other branches of the District government and by various corporations and others.

Summary of work under appropriation for improvement and repairs for year ending June 30, 1924

| | |
|---|--------------|
| Asphalt surface pavements (blanket treatment)_____square yards__ | \$3, 043. 00 |
| Vitrified block gutter_____do_____ | 670. 67 |
| Cement concrete roadway pavements_____do_____ | 151, 866. 00 |
| Old cobble and granite block removed_____do_____ | 6, 271. 30 |
| Granite and bluestone set_____linear feet__ | 9, 062. 65 |
| Cement curb formed and laid_____do_____ | 66, 750. 09 |
| Grading_____cubic yards__ | 80, 953. 85 |
| Cement concrete sidewalks (assessment and permit work)_____square yards__ | 29, 528. 19 |
| Cement concrete sidewalks (around Government reservations)_____square yards__ | 8, 774. 54 |
| Cement concrete alleys (assessment and permit work)_____do_____ | 49, 476. 00 |

The following is the list of tables appended to the report:

Table A.—Street railways in the District of Columbia, July 1, 1924.

Tables B and C.—Statement of character and extent of street pavements.

Table E.—Street improvements.

Table F.—Repairs to asphalt and coal-tar pavements.

Table G.—Work done for street railway companies.

Table H.—Work done by day labor under appropriation for "Repairs to streets, avenues, and alleys."

Table I.—Regular permit work.

Table K.—Assessment work.

Table L.—Replacing and repairing sidewalks and curbs around public reservations.

Table M.—Miscellaneous work.

Table N.—Whole-cost work.

Table O.—Repairs to cuts by plumbers and others.

Table P.—Grading streets, alleys, and roads.

Of the above tables, B, C, and O are printed herewith. The remaining tables are on file in the record room of the office of the engineer of highways, plan case No. B-1162.

The unit cost of roadway pavements for the year was about the same as for the preceding year, while that of sidewalks advanced. Labor costs increased somewhat. A feature of the year's paving program, made possible by special provisions of funds, was the improvement of a number of the main suburban roads with new concrete pavements 7 inches thick designed to be covered with an asphalt wearing surface when conditions under service so dictate. The continued development of new streets by builders, responsive to the building shortage, more than kept pace with the rather modest progress that could be made in paving this class of entirely unpaved roadways.

The fund of \$50,000 provided for paving roadways on deposit in advance of the half cost of the work was expended to the practical limit. Very little resurfacing of asphalt roadways was accomplished during the year for lack of funds and the average age of all these pavements is now believed to be far beyond that of any other municipality; a condition reflected, notwithstanding our special efforts to the contrary, by a progressive deterioration in the safety and comfort of their use. More liberal funds for this resurfacing are plainly needed. The use of Bessonite, especially on well-formed and well-traveled macadam roadways, was further developed to the extent of over 80,000 square yards laid during the year with immediate improvement in traffic conditions and confidently expected reduction in future upkeep costs.

In past years the demands for the paving of alleys was customarily subordinate to those for sidewalks, both being chargeable to the same fund, but due to the very great increase in suburban development and in alley garages the reversal of this relationship has occurred, and requests for alley pavements are far in excess of our ability to respond thereto. An increase in the fund for this class of work would be directly responsive to community needs that have been specifically expressed and are continuing to grow.

At the end of the year all work provided for by appropriations had been completed except a very few items intentionally retarded under a resurfacing and a general sidewalk contract and a single square of roadway pavement which was necessarily delayed by underground installations.

The extent of repairs made to pavements disturbed by corporations, individuals, and other agencies at the cost of these agencies was practically the same as for the preceding year, and is reflected in the amount expended, about \$370,000, and the number of individual items of repair, over 60,000. Every type of pavement on our streets is included in the areas repaired and the revolving fund involved (operating account, streets) is maintained in a thoroughly solvent state by an addition of 5 per cent overhead to the actual labor and material costs of the work.

MUNICIPAL ASPHALT PLANT

The total output of the municipal asphalt plant for the year was 206,060 cubic feet of material, consisting of 155,280 cubic feet of old

material mixture and 50,780 cubic feet of topping mixture. The plant was operated for 239 days, with an average daily output of 862 cubic feet. In connection with the output of the plant, the crusher was operated for 62 days during the year and 4,136 cubic yards of old material hauled to the plant from various streets was crushed.

Constant attention is given to the maintenance of both the plant and the crusher, repairs being made and parts replaced when necessary, thereby keeping them in the best operating condition possible. This cost is incorporated in the total cost of output shown below.

The following material in amounts set forth below were purchased for use in manufacturing the output during the year:

| | |
|--|---------|
| Limestone dust, 162 tons, cost average..... | \$5. 05 |
| Sand, 4,256.75 cubic yards, cost average..... | 1. 46 |
| Asphaltic cement, 654.69 tons, cost average..... | 19. 30 |

There were purchased for use in operating the crusher and mixer the following large items:

| | |
|---|---------|
| Fuel oil, 45,241 gallons, cost average..... | \$0. 05 |
| Coal, 195 tons, cost average..... | 7. 43 |
| Wood, 125 cords, cost average..... | 15. 92 |

The cost of operation, including labor and material, are kept from day to day, and the summary of this data for the fiscal year develops the following unit costs for the year's operation:

Operation of crusher

(Period of operation, 62 working days; output of crusher, 4,136 cubic yards)

Cost of crushed product per cubic yard:

| | |
|--|---------|
| Labor and fuel..... | \$1. 41 |
| Maintenance, renewals, and repairs..... | . 14 |
| Overhead cost: The original cost was amortized by deducting 20 per cent from same each year during the first five years of its life. | |
| Total cost..... | 1. 55 |

Operation of plant

(Period of operation, 239 days; total output, 206,060 cubic feet)

| | |
|--|--------|
| Total manufacturing cost per cubic foot: | Cents |
| Labor..... | 8. 32 |
| Fuel oil..... | 1. 02 |
| Coal..... | . 60 |
| Wood..... | . 46 |
| Total cost..... | 10. 40 |
| Haul from plant to street: Labor..... | 7. 83 |
| On street: | |
| Labor..... | 27. 00 |
| Painting joints..... | . 46 |
| Fuel..... | . 36 |
| Total cost..... | 27. 82 |
| Maintenance and repairs: | |
| At plant..... | . 84 |
| On street..... | . 13 |
| Total..... | . 97 |

Overhead: The original cost was amortized by deducting 20 per cent from same each year during the first five years of its life.

| | |
|---|-------|
| | Cents |
| Supervision, per cubic foot: Foreman and overseers----- | 5.07 |
| <hr/> | |
| Total manufacturing cost per cubic foot: | |
| Plant labor----- | 10.40 |
| Hot haul----- | 7.83 |
| Street work----- | 27.82 |
| Maintenance of plant and tools----- | .97 |
| Supervision----- | 5.07 |
| Total----- | 52.09 |

The sand used was bought under contract at 80 cents per cubic yard and hauled from the wharf to the plant at the cost of \$2,796.54 for 4,256.75 cubic yards, or \$0.66 per cubic yard, a total of \$1.46 per cubic yard. All other expendable material was delivered at the plant site at the cost thereof used herein.

The cost of a cubic foot of old material from the above was as follows:

| | |
|--|----------|
| 0.65 cubic foot of old material, at \$1.55 per cubic yard----- | \$0.0373 |
| 0.35 cubic foot sand, at \$0.80 per cubic yard; hauled, \$0.66 per cubic yard----- | .0189 |
| 3.33 pounds limestone dust, at \$5.05 per ton----- | .0084 |
| 5.04 pounds asphaltic cement, at \$19.38 per ton----- | .0488 |
| Cost of material----- | .1134 |
| Manufacturing and placing cost----- | .5209 |
| Total cost per cubic foot----- | .6343 |

Topping mixture:

| | |
|--|-------|
| 1 cubic foot of sand, at \$0.80 per cubic yard; hauled, \$0.66 per cubic yard----- | .0541 |
| 4.20 pounds limestone dust, at \$5.05 per ton----- | .0106 |
| 10.08 pounds asphaltic cement, at \$19.38 per ton----- | .0976 |
| Cost of material----- | .1623 |
| Manufacturing and placing cost----- | .5209 |
| Total cost per cubic foot----- | .6832 |

The total cost of minor repairs to sheet asphalt and asphaltic concrete pavements during the year, the same representing the maintenance cost during the year, was \$68,287.50. This cost represented the maintenance of all asphalt and asphaltic concrete streets not under guaranty by contractors, a total yardage of 3,613,386. The cost per square yard per year was therefore about 1.89 cents.

For purposes of record and comparison the like annual costs are here stated for past years: 1908, 3.8 cents; 1909, 2.3 cents; 1910, 2.6 cents; 1911, 2.2 cents; 1912, 2.4 cents; 1913, 2 cents; 1914, 1.9 cents; 1915, 1.9 cents; 1916, 1.8 cents; 1917, 1.5 cents; 1918, 1.7 cents; 1919, 3.07 cents; 1920, 3.38 cents; 1921, 3.75 cents; 1922, 2.69 cents; 1923, 2.22 cents.

The municipal asphalt plant began operations in 1912, repairs being made by contract during the first quarter of that year, and with the asphalt plant during the last three quarters of that year and continuously since. The marked reduction for the year 1917 is affected very significantly by the law effective that year by which

repairs to pavements over one year old are chargeable to repair appropriations instead of being paid for by the paving contractors under a five-year guaranty, as formerly. The yardage of pavement over which our repairs were distributed was thus increased by nearly 700,000 square yards, on which practically no expenditures were needed, as the pavements were only from one to five years old.

In connection with these costs of annual repair it should be considered that some of the streets approximate an age of 40 years and that the average age of those we have resurfaced in recent past years exceeds 25 years. The average age of streets resurfaced in 1910 was 25.8 years; in 1911, was 24.5 years; in 1912, was 25.8 years; in 1913, was 26 years; in 1914, was 28.5 years; in 1915, was 28 years; in 1916, was 29.6 years; in 1917, was 27 years; in 1918, was 26 years; in 1919, was 26.7 years; in 1920, was 23.6 years; in 1921, was 23.2 years; in 1922, was 28.7 years; there was no resurfacing done in 1923 and very little in 1924.

STREETS

Repairs to streets, avenues, and alleys, appropriation 1924, were made under the immediate supervision of the superintendent of streets, as follows:

| | | |
|------------------------------|----------------|----------------|
| Brick sidewalk relaid..... | square yards.. | 14, 314 |
| Asphalt block paved..... | do..... | 628 |
| Asphalt block repaved..... | do..... | 10, 174 |
| Vitrified block paved..... | do..... | 1, 741 |
| Vitrified block repaved..... | do..... | 5, 860 |
| Curb reset..... | linear feet.. | 447 |
| Granite block laid..... | square yards.. | 3, 422 |
| Cement walk relaid..... | do..... | 8, 405 |
| Grading..... | cubic yards.. | 4, 218 |
| Labor..... | | \$113, 935. 04 |
| Material..... | | \$11, 927. 49 |

SUBURBAN ROADS

The following items of the District appropriations for 1924 were expended principally under the direction of the superintendent of roads, viz:

| | |
|---|------------|
| Repairs to suburban roads..... | \$275, 000 |
| Grading streets, alleys, and roads..... | 35, 000 |
| Paving roadways, permit system..... | 50, 000 |

In addition to the above amounts, \$50,000 additional was expended under this office from the appropriation for repairs to streets and for repairs to cuts and other work which was paid for by the deposit of funds by individuals.

The work under the appropriation for repairs to suburban roads consisted principally of maintenance of the existing roads by patching with bituminous mixture and by surface treatment. The cost of surface treatments was \$34,362.87; 135,000 gallons of oil and tar were applied, and about 700,000 square yards of roadway were treated at a cost of about 5 cents per square yard.

The cost of bituminous patching has been considerably reduced by the installation of machinery for mixing and loading. The cost of

1 ton of bituminous material mixed for cold patching has been found to be as follows:

| | |
|--------------------------------------|--------|
| Stone at the yard----- | \$2.25 |
| Bituminous material, 10 gallons----- | 1.20 |
| Labor for mixing----- | .60 |
| Cost per ton at mixer----- | 4.05 |

This is equivalent to a cost of about 20 cents per cubic foot, which will cover about 12 square feet of average surface.

The very large extent of building operations throughout the District during the year made it necessary to use a considerable part of the appropriation for repairs to roads for surfacing in a temporary manner newly opened squares which were built upon during the year and for which no other fund was available. Such temporary surfaces aggregate 7.21 miles, a length much greater than that of the permanent pavements laid in the suburban area during the year on streets of similar character. This work required 21,116 cubic yards of soft coal cinders in addition to old street material, ashes from city collections, etc. It has been found that ashes from house collections, where no better material is available and when properly regulated, rolled, and oiled, form an excellent and cheap temporary roadway material. Such a surface was built on Webster Street NW., from Second Street to New Hampshire Avenue, a distance of three squares, in a solidly built residence section, at a cost of about 40 cents per square yard, or 85 cents per linear foot of street, exclusive of curbs and gutters. The ashes were delivered by the street cleaning division at the work free of charge. The surface was later regulated and oiled at a cost of about 5 cents per square yard, or 11 cents per linear foot of street; making the total cost about 45 cents per square yard, or less than \$1 per linear foot, for 1,100 feet of street. It is expected that this roadway with a normal amount of maintenance will last until an appropriation for paving can be obtained and a new pavement laid. In this case cement curbs and gutters had been constructed under the permit system.

The experimental use of a blanket of sheet asphalt laid on top of macadam roadways as a base, which was begun last year on several suburban roads, was continued. Where conditions as to the roadway crown permit this gives a very satisfactory and durable surface, except under most severe conditions of heavy traffic. Such surfaces were placed on parts of Cedar Street NW., Rittenhouse Street, Western Avenue, New Cut Road, and Little Falls Road. Where used, this treatment has diminished the maintenance cost, and it is recommended that this method of treatment of macadam roads be continued in cases where it is practicable to do so.

In addition to the grading paid for by the District from the grading appropriation of \$35,000, a very much larger amount of street and alley grading was done by private individuals under permits, this being the practice where large tracts are being graded for building or for speculative purposes.

The extension of the pavements on the trunk highways toward the District line, under special appropriations, advanced rapidly during the year. Connecticut Avenue and Rhode Island Avenue were completed; Bladenburg Road was finished to South Dakota Avenue, and

Nichols Avenue was paved to Portland Street. These pavements would considerably decrease the amount expended for maintenance on suburban roads and streets if an almost equal area of previously unimproved streets had not been added by new developments.

Some of the cement roadway pavements, both of those built several years ago and some of those built more recently, where heavy traffic occurs, are showing the need for extensive repairs. Such repairs are necessarily costly, and it is believed that a blanket coat of asphalt should be applied upon the surface of the concrete in all such cases before the disintegration proceeds too far. This blanket coat is now provided for by an added depth of the curb of $1\frac{1}{2}$ inches. Where such blanket coats have been applied, even on pavements which had been badly cracked, the result has been very satisfactory.

BRIDGES

The expenditures from the appropriation for the construction and repair of bridges amounted to \$36,507.75, and the unexpended balance was \$35.95.

The principal items of work were:

| | |
|---|------------|
| P Street Bridge, over Rock Creek, refloor..... | \$1,830.54 |
| Pennsylvania Avenue Bridge, over the Eastern Branch, refloor sidewalk..... | 1,400.42 |
| Livingston Road Bridge, over Oxen Run, rebuild..... | 5,136.09 |
| Normanstone Drive culvert, rebuild..... | 801.21 |
| Dangerous holes and minor repairs..... | 3,080.45 |
| Salaries..... | 5,756.03 |
| Lumber..... | 2,697.38 |
| Construction materials, other than lumber..... | 1,172.27 |
| Minnesota Avenue Bridge, between Hunt Place and Deane Avenue..... | 4,272.80 |
| Q Street Bridge, over Rock Creek, repairs to superstructure..... | 8,600.76 |
| Kenilworth Avenue culvert, north of Bennings Road, rebuilt at charge to this fund of..... | 966.75 |
| Bennings Road Bridge, over the Eastern Branch, resurface..... | 3,251.28 |

The appropriations for Anacostia Bridge and for Highway Bridge were expended practically in full.

The engineer stables, housing 46 horses and 6 mules, are located at U Street NW. between Sixteenth and Seventeenth Streets, and First and Canal Streets SW. The animals are assigned to the various departments as follows:

| | |
|-------------------------------------|----|
| Sewer division..... | 15 |
| Repair shop..... | 14 |
| Repairs to cuts..... | 15 |
| Sealer of weights and measures..... | 1 |
| Electrical department..... | 1 |
| Extra horses..... | 6 |

52

Number of annual employees: One superintendent, one blacksmith, two drivers, two watchmen.

My acknowledgments are due to the employees of this division for the work accomplished by the office during the year.

C. B. HUNT,

Engineer of Highways.

To the ASSISTANT ENGINEER COMMISSIONER.

TABLES B and C.—Character and extent of roadway pavements July 1, 1924

SQUARE YARDS

| Section | Asphalt | Asphaltic surface | Asphalt block | Asphaltic concrete, concrete base | Asphaltic concrete, stone base | Cement concrete | Durax block (small granite block) | Granite and rubble |
|-----------------------|-----------|-------------------|---------------|-----------------------------------|--------------------------------|-----------------|-----------------------------------|--------------------|
| Northwest | 1,819,241 | 5,335 | 25,323 | 9,674 | 6,372 | 20,999 | 12,294 | 91,292 |
| Northeast | 415,575 | ----- | 193,962 | 3,127 | ----- | 11,825 | ----- | 17,601 |
| Southeast | 262,954 | ----- | 238,437 | 8,019 | 4,082 | 2,509 | ----- | 37,199 |
| Southwest | 286,102 | 13,264 | 40,436 | 13,535 | ----- | 11,148 | ----- | 136,374 |
| Georgetown | 156,171 | ----- | 23,076 | 4,144 | 905 | ----- | 5,674 | 30,492 |
| Northwest suburban .. | 391,975 | 65,562 | 84,046 | 25,855 | 24,501 | 291,695 | ----- | 4,004 |
| Northeast suburban .. | 90,255 | 8,346 | 6,925 | 14,354 | ----- | 96,397 | ----- | ----- |
| Southeast suburban .. | 21,203 | 35,532 | ----- | ----- | 3,049 | 21,522 | ----- | 1,000 |
| Total | 3,443,476 | 128,039 | 612,205 | 78,708 | 38,909 | 456,095 | 17,968 | 317,962 |

| Section | Vitrified block | Cobble | Macadam (estimated) | Gutters on asphaltic streets | Gutters on asphaltic concrete streets | Pavements maintained by street railroads | Total |
|-----------------------|-----------------|--------|---------------------|------------------------------|---------------------------------------|--|-----------|
| Northwest | 9,855 | 5,763 | 20,939 | 119,662 | 1,128 | 287,110 | 2,434,987 |
| Northeast | 3,882 | ----- | 30,416 | 32,955 | 231 | 69,316 | 778,890 |
| Southeast | ----- | 13,122 | 45,465 | 18,316 | 898 | 48,328 | 679,329 |
| Southwest | 3,138 | 7,070 | 10,136 | 24,527 | 1,254 | 56,820 | 603,804 |
| Georgetown | 515 | 10,419 | 3,000 | 5,979 | 498 | 35,325 | 276,198 |
| Northwest suburban .. | ----- | ----- | 1,230,693 | 29,381 | 4,517 | 79,771 | 2,232,000 |
| Northeast suburban .. | ----- | ----- | 316,908 | 6,383 | 1,049 | 25,356 | 565,973 |
| Southeast suburban .. | ----- | ----- | 29,541 | 6,385 | 272 | 14,781 | 133,285 |
| Total | 17,390 | 36,374 | 1,687,098 | 243,588 | 9,847 | 616,807 | 7,704,466 |

MILEAGE

| Section | Asphalt | Asphaltic surface | Asphalt block | Asphaltic concrete, concrete base | Asphaltic concrete, stone base | Cement concrete | Durax block (small granite block) |
|-----------------------|---------|-------------------|---------------|-----------------------------------|--------------------------------|-----------------|-----------------------------------|
| Northwest | 93.52 | 0.34 | 1.57 | 0.51 | 0.24 | 1.15 | 0.30 |
| Northeast | 21.77 | ----- | 8.58 | .19 | ----- | .80 | ----- |
| Southeast | 13.93 | ----- | 11.93 | .43 | .17 | .16 | ----- |
| Southwest | 15.51 | .66 | 2.37 | .68 | ----- | .36 | ----- |
| Georgetown | 9.30 | ----- | 1.51 | .49 | .06 | ----- | .27 |
| Northwest suburban .. | 21.86 | 5.09 | 4.52 | 1.31 | 1.48 | 15.54 | ----- |
| Northeast suburban .. | 5.64 | .63 | .63 | .97 | ----- | 4.84 | ----- |
| Southeast suburban .. | 1.83 | 2.92 | ----- | ----- | .21 | 1.06 | ----- |
| Total | 183.36 | 9.64 | 31.11 | 4.58 | 2.16 | 23.91 | .57 |

| Section | Granite and rubble | Vitrified block | Cobble | Macadam (estimated) | Gravel and unimproved (estimated) | Total |
|-----------------------|--------------------|-----------------|--------|---------------------|-----------------------------------|--------|
| Northwest | 5.11 | .50 | .08 | .90 | 2.54 | 106.76 |
| Northeast | .87 | .24 | ----- | 1.60 | 4.02 | 38.07 |
| Southeast | 2.14 | ----- | .66 | 2.15 | 6.33 | 37.90 |
| Southwest | 7.09 | .27 | .30 | .49 | 2.62 | 30.35 |
| Georgetown | 2.12 | .03 | .48 | .06 | .76 | 15.08 |
| Northwest suburban .. | .10 | ----- | ----- | 76.66 | 58.40 | 184.96 |
| Northeast suburban .. | ----- | ----- | ----- | 24.12 | 48.85 | 85.68 |
| Southeast suburban .. | .04 | ----- | ----- | 2.22 | 36.87 | 45.15 |
| Total | 17.47 | 1.04 | 1.52 | 108.20 | 160.39 | 543.95 |

TABLE O.—*Number of square yards and cost of repairs to cuts in various streets, sidewalks, and alleys during the fiscal year ending June 30, 1924, chargeable to plumbers, public-service corporations, individual depositors, and appropriations of the District and Federal Governments*

| Repairs charged to— | Flat rate | Whole cost | Total |
|---|-------------|--------------|-------------|
| Plumbers..... | \$20,416.51 | | \$20,416.51 |
| Public-service corporations..... | 65,349.60 | \$154,377.07 | 219,726.67 |
| Individual depositors..... | 28,180.61 | | 28,180.61 |
| Various appropriations of the District and Federal Governments..... | 53,811.79 | 51,179.08 | 104,990.87 |
| Total..... | 167,758.51 | 205,556.15 | 373,314.66 |

| Repairs made to— | Flat rate | Whole cost |
|------------------------|------------|-------------|
| Square yards: | | |
| Sheet asphalt..... | \$5,374.55 | \$10,869.22 |
| Vitrified block..... | 867.05 | 3,008.71 |
| Asphalt block..... | 1,474.66 | 6,682.37 |
| Granite block..... | 605.23 | 7,421.53 |
| Cobble..... | 139.66 | 449.26 |
| Cement sidewalks..... | 17,246.37 | --- |
| Macadam..... | 2,157.70 | 752.96 |
| Concrete roadways..... | 6,643.81 | 194.65 |
| Scoria..... | 21.63 | 1,077.09 |
| Durax..... | 18.87 | 1,876.90 |
| Brick sidewalks..... | 4,350.78 | 9,766.14 |
| Total..... | 38,900.31 | 42,098.83 |

REPORT OF THE INSPECTOR OF ASPHALTS AND CEMENTS

WASHINGTON, D. C., *August 30, 1924.*

SIR: I have the honor to submit the following report of operations of this division during the fiscal year ending June 30, 1924.

Total number of samples tested 11,526, records of each on file in office.

ASPHALT PAVEMENTS

There were laid by the Cranford Co. approximately 83,043 square yards of asphalt concrete sand topping mixture (Bessonite), this in resurfacing old macadam and granite-block roadways.

This is the third year Bessonite has been used by the District. All laid has thus far stood up well under traffic and is giving satisfactory service.

CONCRETE ROADWAYS

There were also laid by contractors 151,884 square yards of concrete roadways. The aggregate was plant proportioned in batches and mixed on site of work. Results of compression tests show a maximum of 2,628.75 and a minimum of 1,581.30, with a general average of 2,073.35 pounds per square inch.

PORTLAND CEMENT

Number of samples tested, 9,630, representing 96,306 barrels, all of which complied with specifications.

Nine tables showing in detail materials tested, results thereof, and by whom submitted are on file in this office.

Very respectfully,

V. CLEAVER,

Inspector of Asphalts and Cements.

The ENGINEER OF HIGHWAYS.

REPORT OF THE SUPERINTENDENT OF TREES AND PARKINGS

WASHINGTON, D. C., August 20, 1924.

SIR: I have the honor to submit my annual report dealing with the operations of the trees and parkings division for the fiscal year ended June 30, 1924.

TREES PLANTED

Young trees to the number of 1,034 were planted in their permanent positions on the streets during the fiscal year, a net increase of 976 over the previous year. Trees were planted on both sides of Cleveland Avenue NW. between Cathedral Avenue and Thirty-fourth Streets; both sides of Klinge Road NW. between Thirty-second and Thirty-fourth Streets; south side of Woodley Road NW. between Klinge Road and Thirty-fourth Street; east side of Thirty-fourth Street NW. between Cleveland Avenue and Woodley Road; west side of Thirty-third Place NW. between Woodley Road and Lowell Street; west side of Thirty-second Street NW. between Woodland Drive and Garfield Street; south side of Garfield Street NW. between Thirty-second Street and Woodland Drive; northeast side of Woodland Drive NW. between Thirty-second and Garfield Streets; around Grant Circle; both sides of Thirteenth Street NW. between Hamilton and Ingraham Streets; both sides of Varnum Street NW. between Sixteenth and Seventeenth Streets; both sides of Ingraham Street NW. between Thirteenth and Fourteenth Streets; south side of Water Street SW. between Seventh and Ninth Streets; and the west side of Water Street SW. between L and M Streets to extend the existing lines into the suburbs and hitherto unplanted localities. Trees were planted on both sides of T Streets NW. between Twelfth and Fourteenth Streets; north side of T Street NW. between Fourteenth and Sixteenth Streets; and both sides of P Street NW. between Sixth and Seventh Streets to replace those removed some time ago because of street improvements.

The majority of the trees was planted for the purpose of filling vacancies in existing rows.

The locations of 43 elm trees were changed on Rhode Island Avenue NE. between Twenty-fourth and Twenty-eighth Streets, because they interfered with the widening of this thoroughfare.

The planting of trees during the year had to be curtailed to some extent due to the fact that the trees in the nurseries were too small to be transplanted to the streets.

The cost of planting 851 trees was paid from the appropriation for the trees and parkings division; 53 from the appropriation for other departments, and 130 from whole cost deposits. These trees were planted at the curb line.

TREES REMOVED

A total of 1,552 trees were removed during the year for various reasons. Of these, 287 were decayed and dangerous; 1 was of a condemned variety; 2, to relieve excessive shade; 6, interference with parking improvements; 336, street improvements; 59, for drive-ways; 10, improvements of alleys; 36, destroyed by automobiles; 101, storms; 8, interference with entrance to buildings; 10, close proximity to buildings; 32, interference with building operations; 2, injurious to curb trees; 2, interfered with the location of street lamps; 1, interfered with vault construction; and 3, interfered with construction of sewer. It was ascertained that 34 trees were destroyed by illuminating gas; 13, salt water; 27, abnormal moisture supply; 17, by being filled around; 14, by being girdled; 192, by drought; 3, by insects; 20, by root mutilation; 1, by oil; 15, by horse bite; and the deaths of 320 were unexplained.

Of the total number removed, 1,333 stood at the curb line, 150 in the parking, 34 in the sidewalk, 18 in alleys, 15 in roadways, and 2 on private property.

The cost of removing 1,165 trees was paid from the appropriation for the trees and parkings division, 236 from the appropriations for other departments, and 151 from whole cost deposits. The cost of removing the trees paid from the appropriation for the trees and parkings division amounted to a total of \$4,233.16.

TREES SPRAYED

Street trees, like all other forms of vegetation, are subject to attacks of insects and diseases. The trees of this city suffer each year from these insects, principally the elm-leaf beetle, the tussock moth, and the fall web-worm. This office purchased two Stewart super-spraying machines with Fordson tractors, at a total cost of \$4,247.10, to replace the horse-drawn equipment.

This department has sprayed 9,610 trees during the year for the extermination of leaf-eating insects. The life of the deciduous tree attacked by leaf-eating insects is directly endangered by them only when they keep the tree in a state of complete defoliation for several years in succession. Nevertheless, aside from disfiguring the tree for the season, defoliation tends to reduce its vitality. This often leads to attacks by other insects, principally bark and wood borers, which frequently result in fatalities to the infected trees.

NURSERIES

The young trees in the Fort Dupont and Poplar Point nurseries are doing very well. These sites are well stocked with those varieties that are considered best for street planting.

It has been impossible to plant trees along the recently improved streets due to inadequate appropriations and the loss of two nursery sites. This department transplanted 1,045 red oak trees, 561 white oak, 570 Norway maple, 6 sycamore maples, 62 elm, and 26 sycamore trees from the seed beds to the nursery rows at Fort Dupont nursery. The sum of \$3,300.91 was expended in cultivating

and trimming the young trees in the nursery rows and seed beds at the Fort Dupont site.

At the Poplar Point nursery there were transplanted 798 red oak trees, 213 elms, 184 poplars, 162 acacia, and 114 Norway maple. The sum of \$4,065.63 was expended in the propagation of trees at this nursery.

TRIMMING

Street trees require a great amount of trimming to prevent their encroachment on buildings and their interference with street and sidewalk traffic. It is necessary for the reasons stated to undertake the trimming of many trees, but this operation is not in all cases best for the welfare of the tree.

The silver maple trees are responsible for the largest outlay in trimming. This species was planted years ago to the exclusion of many kinds whose subsequent use proved more advantageous. This tree, as a street variety, is noted for the early decay of its branches. It requires close attention to keep it in proper condition.

A small force of men accomplished much trimming on individual requests.

A total of 10,884 trees were trimmed during the year at a total cost of \$6,249.37.

In addition to the trimming for individuals the force attended to the miscellaneous casualties to trees and boxes reported by the police department. This casualty work was performed at a cost of \$1,210.25. The sum of \$618.82 was expended in removing broken limbs, trees, etc., from the streets caused by storms.

TREE SURGERY

Cavities are caused by any neglected injury to a tree through which the bark has been destroyed, thus allowing the wood to decay toward the center of the tree. The most common injuries result from neglect in treating wounds and removing stubs in pruning and failure to remove dead branches and those broken by storms. Treatment of cavities is ineffective unless all diseased wood is completely removed.

The cavities in 8 elm trees, 1 pin oak, 12 linden, 5 sycamore, 2 silver maple, and 1 Norway maple tree standing at the curb line, and 1 sycamore, 1 tulip poplar, and 1 silver maple tree standing in the public parking were given attention.

CULTIVATING YOUNG TREES, MOWING PARKINGS, AND REMOVING TREE BOXES

The value of cultivating young trees is not fully appreciated. The cultivation of small trees for four or five years after they have been transplanted to the street is absolutely necessary to insure good growth. It is not only beneficial to the young trees, but in addition destroys a rank growth of weeds that spring up around them. The cultivation of the soil adjacent to the tree permits air to reach the roots, renders more available the plant food the soil contains, allows the young tree to derive the fullest benefit from rainfall, and prevents the rapid evaporation of moisture.

A total of 2,460 young trees were cultivated during the year at a total cost of \$491.71.

The sum of \$2,528.67 was expended during the year for the removal of weeds from uninclosed parkings along the streets, and the sum of \$177.09 for the miscellaneous care of the small reservations under the control of the commissioners of the District of Columbia. There were 924 wooden tree boxes and 235 iron tree guards removed from the large trees throughout the city.

PAVING OF ABANDONED TREE SPACES

The work of paving abandoned tree spaces throughout the city was performed by the surface division, engineer department, and the cost of this paid from the appropriation for the trees and parkings division. A total of \$245.69 was spent on this work.

REGULATION OF TERRACES

This office issued 1,005 permits affecting the grade of terraces in connection with building operations in the residential districts during the year. The regulation of parking grades is proceeding very satisfactorily, and we have had very little trouble with builders relative to maintaining uniform parking grades.

This department believes that the condition of the shade trees of Washington is, generally speaking, the best that can be expected when the adverse circumstances attending their growth, health, and life are considered. In his natural interest and civic pride the Washingtonian all too frequently loses sight, as his complaints indicate, of the tremendous handicaps under which the city tree must not only live but live well to bear out such traditions as "The City Beautiful" and "The City of Trees."

For instance, the city tree is deprived of the natural seepage under which its country fellow thrives. It depends on its miniature and unnatural parking for rain water. Contrast this alone with the country tree that has acres for surface seepage and then marvel that the city tree, hemmed in by miles and miles of concrete, its roots writhing about leaky gas mains, blocked by electric conduits and water pipes, lives at all. Add to these apparently insurmountable obstacles salt water from ice cream freezers, oil from roadways and motor vehicles, the indifference of the curb setter, the conduit layer, the lineman, and the plumber—and the hardihood and beauty of our trees present one of those superb feats of adjustment that, in my opinion, should rank well up in Darwin's theory of survival and a natural adjustment.

Latterly another menace has arisen. Consider the thousands of automobiles that pass any given downtown tree in a single day. Now, consider the hundreds of thousands of cubic feet of poisonous gases that are discharged by these automobiles and that must be neutralized by the life forces of the city tree. Consider this and then do not ask why a tree is apparently failing but rather why it lives at all.

It has always been the aim of this department to keep the trees in foliage during the hot summer months. In the last few years we

have been far more successful in this than in the past, due principally to the increases in our appropriations. To care for 500 miles of trees with our limited force and necessarily limited equipment might indeed be classed as a Herculean task.

Many of Washington's trees are poor specimens. They are being replaced as methodically and as rapidly as the funds available permit. But even then is it not better to have a relatively poor species of shade tree, for instance the silver maple, than no tree at all?

If large appropriations are given for the cutting through and improvement of streets, is it not logical to assume that if trees are to be planted along them that the appropriation for the department of trees and parkings should be increased proportionately or provision made for planting expenditures from the former appropriation?

At any rate we are doing the best we can with the funds available, and all we ask is the same splendid cooperation that has characterized the dealings of this department with the citizenry of Washington in the last few years.

In conclusion, let us all remember that a tree is one of the most magnificent gestures of a beneficent divinity.

Summary

| | |
|---|---------|
| Curb trees on streets at close of fiscal year 1923----- | 104,593 |
| Net decrease of curb trees during fiscal year 1924----- | 299 |

| | |
|---|---------|
| Curb trees on streets at close of fiscal year 1924----- | 104,294 |
|---|---------|

Very respectfully,

C. LANHAM,

Superintendent Trees and Parkings.

ASSISTANT TO THE ENGINEER COMMISSIONER.

REPORT OF THE CITY REFUSE DIVISION

WASHINGTON, D. C., *August 4, 1924.*

SIR: I have the honor to submit the following report of the operations of the city refuse division, engineer department, for the year ended June 30, 1924.

The amount of money turned into the Treasury from grease and salvaged material totaled \$302,642.54. Considering the market prices at which these products were forced to be sold the total is very satisfactory, and it constitutes a substantial sum toward the upkeep of the city.

The amount of garbage collected was less than in the previous year, but from it more grease was produced. Similarly there was salvaged a greater amount of miscellaneous trash from a lesser quantity of trash collected.

The total receipts were as follows:

| | |
|-----------------------------|------------------|
| Garbage grease sold----- | \$196,630.79 |
| Salvaged trash sold----- | 101,741.58 |
| Dead animal hides sold----- | 1,975.00 |
| Manure sold----- | 2,295.17 |
| | <hr/> 302,642.54 |

The total expense of collecting and disposing of all the city refuse was \$821,155.35, so that the net cost of this work was \$518,512.81.

It is to be noted that the wage scale of laborers and mechanics was substantially increased in December of 1923. Laborers and drivers previously receiving \$2.72 and \$2.88 per day were advanced to \$3.04 and \$3.20, respectively, so that the unit cost of all work from December on was materially increased.

The garbage disposal plant produced 3,607,600 pounds of grease from 75,089 tons of garbage collected, compared with a production in the previous year of 3,451,859 pounds from 80,014 tons. The expense of this reduction, including the freight charges on the raw garbage from the transfer station in Washington to the plant at Cherry Hill and capital expenditures for improvements to plant, was \$167,953.70, so that this plant virtually operated at a profit of \$28,665.71.

The trash plant cost to operate \$95,048.71. The excess of receipts over expenditures at this plant was \$6,692.87. Included in the expenditures is an item of \$9,000 for the purchase of 6 acres of land adjoining this plant.

By act of Congress the commissioners were prohibited from letting any further contract for the collection of dead animals after July 1, 1923. This work, involving the collection of 34,764 dead animals, was done by the District at a gross cost of \$6,886.81. The return from hides sold was \$1,975, so the net cost of this work was \$4,911.81. This cost would have been materially reduced had it been possible to sell the hides of 154 large animals which it was necessary to bury at a remote place and at great expense in the way of hauling and digging in the period from August 21 to October 27, during the time when the private rendering plant, which during the rest of the year handled these animals for the District, was in process of rehabilitation after a severe fire.

The ashes from private householders were collected and disposed of at a cost of \$131,589.11. Much of this material was used with benefit as a temporary surfacing to newly opened streets and alleys.

The amount expended for dust prevention and cleaning of streets and alleys and the removal of snow was \$392,185.86. The tables appended hereto show the yardage cleaned by the several different methods and the cost of each. It is to be noted that some 96,000,000 square yards more were cleaned by hand patrol during the course of the year than in the previous year. This means about 352,000 square yards more cleaned each day and is to be accounted for by reason of new pavement laid during the year. Under the extensive construction program undertaken by the surface division this year the yardage to be cleaned will be substantially increased.

At the beginning of the year this office was required, as were all other offices, to set aside a general reserve of 5 per cent under each appropriation. This division endeavored to comply with this demand and to carry on the operations on a businesslike and economical basis; saving wherever it was possible to do so. In this effort there was turned back into the Treasury \$38,844.65 from the appropriation for city refuse disposal and \$7,814.14 from the appropriation for street cleaning.

The results obtained in the several services in this division are the consequence of good teamwork on the part of the employees. I take this opportunity to express my appreciation of their loyal efforts.

MORRIS HACKER,
Supervisor City Refuse.

To the ENGINEER COMMISSIONER.

Cost of street cleaning, July 1, 1923, to June 30, 1924

| | Area (square yards) | Cost | |
|-------------------------------|---------------------|-------------|------------|
| | | Total | Unit per M |
| Machine cleaning, horse | 64,673,000 | \$21,312.26 | \$0.330 |
| Machine cleaning, motor | 51,619,000 | 13,538.78 | .262 |
| Alley cleaning | 85,716,000 | 53,227.77 | .622 |
| Suburban cleaning | 38,259,000 | 20,776.27 | .542 |
| Hand patrol | 1,563,035,000 | 205,551.42 | .131 |
| Motor flushing | 89,246,000 | 9,726.74 | .109 |
| Squeegeeing | 46,387,000 | 7,772.83 | .169 |
| Sprinkling | | 5,500.01 | |
| Annual overhead | | 797.33 | |
| Property accounting | | 2,170.65 | |
| Dump men | | 2,128.56 | |
| Waste paper boxes | | 5,316.35 | |
| Sunday cleaning | | 3,049.99 | |
| Snow and ice | | 9,215.84 | |
| Total | | 360,084.80 | |

Table showing comparative data in connection with street-cleaning work, 1920 to 1924

SQUARE YARDS CLEANED

| | 1920 | 1921 | 1922 | 1923 | 1924 |
|------------------------|---------------|---------------|---------------|---------------|---------------|
| Hand patrol | 1,173,802,000 | 1,323,163,000 | 1,357,169,000 | 1,466,464,000 | 1,563,035,000 |
| Machine, horse | 98,350,000 | 119,256,000 | 66,194,000 | 65,451,000 | 64,673,000 |
| Machine, motor | | | 45,140,000 | 49,197,000 | 51,619,000 |
| Alley cleaning | 55,344,000 | 69,090,000 | 57,288,000 | 63,082,000 | 85,716,000 |
| Suburban streets | 34,550,000 | 60,382,000 | 50,221,000 | 39,234,000 | 38,259,000 |
| Squeegeeing | 111,008,000 | 127,596,000 | 94,650,000 | 59,940,000 | 46,387,000 |
| Flushing | | | | | |
| Motor flushing | 24,433,000 | 40,842,000 | 48,223,000 | 72,628,000 | 89,246,000 |

DIRECT TOTAL COST

| | | | | | |
|------------------------|--------------|--------------|--------------|--------------|--------------|
| Hand patrol | \$237,490.76 | \$253,485.93 | \$208,573.06 | \$204,983.34 | \$205,551.42 |
| Machine, horse | 40,915.64 | 48,237.93 | 20,337.33 | 19,534.74 | 21,312.26 |
| Machine, motor | | | 9,974.13 | 13,065.07 | 13,538.78 |
| Alley cleaning | 44,239.33 | 45,696.39 | 35,171.92 | 39,392.12 | 53,227.77 |
| Suburban streets | 24,231.40 | 33,372.65 | 19,887.76 | 18,024.78 | 20,776.27 |
| Squeegeeing | 24,743.81 | 27,684.70 | 14,286.34 | 11,845.35 | 7,772.83 |
| Flushing | | | | | |
| Motor flushing | 6,835.91 | 7,424.31 | 6,498.78 | 8,795.66 | 9,726.74 |

COST PER 1,000 SQUARE YARDS

| | | | | | |
|------------------------|---------|---------|---------|---------|---------|
| Hand patrol | \$0.202 | \$0.192 | \$0.154 | \$0.140 | \$0.131 |
| Machine, horse | .416 | .404 | .307 | .298 | .330 |
| Machine, motor | | | .221 | .266 | .262 |
| Alley cleaning | .800 | .661 | .614 | .624 | .622 |
| Suburban streets | .702 | .549 | .395 | .459 | .542 |
| Squeegeeing | .223 | .217 | .151 | .198 | .169 |
| Flushing | | | | | |
| Motor flushing | .279 | .182 | .135 | .121 | .109 |

Table showing comparative data in connection with disposal of all city waste from 1920 to 1924

NUMBER OF UNITS COLLECTED

| | 1920 | 1921 | 1922 | 1923 | 1924 |
|-------------------------------|---------|---------|---------|---------|---------|
| Garbage.....tons.. | 52,793 | 60,058 | 69,452 | 80,014 | 75,089 |
| Ashes.....cubic yards.. | 148,228 | 135,940 | 156,100 | 145,432 | 151,272 |
| Miscellaneous refuse.....do.. | 170,286 | 148,968 | 196,763 | 190,021 | 186,907 |
| Night soil.....barrels.. | 12,734 | 12,507 | 14,190 | 15,217 | 16,063 |
| Dead animals.....number.. | 19,995 | 24,704 | 28,675 | 30,120 | 34,764 |

TOTAL NET COST

| | | | | | |
|---------------------------|--------------|--------------|--------------|--------------|--------------|
| Garbage..... | \$178,311.57 | \$283,406.63 | \$210,268.15 | \$187,314.43 | \$235,235.01 |
| Ashes..... | 114,248.38 | 116,421.04 | 135,267.18 | 117,727.67 | 131,589.11 |
| Miscellaneous refuse..... | 46,522.26 | 66,029.59 | 107,439.84 | 51,087.38 | 84,139.49 |
| Night soil..... | 17,500.00 | 17,500.00 | 17,500.00 | 17,500.00 | 24,000.00 |
| Dead animals..... | 3,360.00 | 3,360.00 | 3,360.00 | 3,360.00 | 4,911.81 |

Miscellaneous data on contracts

| Class of waste | Contractor | Period of contract | Date of expiration | Price per annum | Collected from— |
|-----------------|--------------------|--------------------|--------------------|-----------------|------------------------------|
| Night soil..... | Warner Stutler.... | 3 years.... | June 30, 1926 | \$24,000 | All privies in the District. |

REPORT OF THE SURVEYOR

WASHINGTON, D. C., August 22, 1924.

SIR: I submit herewith report of the operations of the surveyor's office for the year ended June 30, 1924.

This report includes all street-extension matters, such as condemnation of streets, alleys, and parks and other miscellaneous condemnation cases, all of which require descriptions, plats, surveys, and computations covering the land condemned.

The work of this office is divided into three classes:

1. Work performed for private parties, for which fees are charged according to a regular schedule of fees prescribed by the commissioners and estimates made by this office.

2. Work performed for the various departments of the District and Federal Governments. No fees are charged for this class of work.

3. Surveys, descriptions, and reports on condemnation cases for streets, alleys, etc.

During the fiscal year just ended (July 1, 1923, to June 30, 1924) the amount of work performed by this office on an average has been about even with that performed the year previous, these two years showing a great increase over the amount of work for the years preceding them. In some cases during the past fiscal year the work has increased and in some cases slightly diminished over that of the year previous.

As a matter of comparison the following figures are given, showing the amount of work for the past fiscal year (1923-24) as compared with the amount of work during the year previous (1922-23), which will be referred to in this report as "past fiscal year" and "year previous," respectively.

Work for private parties: Number of individual lots surveyed: Past fiscal year, 5,526; year previous, 6,065. Certificates (or plats of survey) issued: Past fiscal year, 2,573; year previous, 2,880. Surveys to locate foundation walls of buildings being erected: Past fiscal year, 1,626; year previous, 1,893. Number of buildings inspected in connection with foundation-wall surveys: Past fiscal year, 1,356; year previous, 1,305. Surveys of unsubdivided county tracts: Past fiscal year, 344; year previous, 202.

Subdivisions: Subdivision plats prepared in duplicate: Past fiscal year, 547; year previous, 587. Subdivisions recorded: Past fiscal year, 456; year previous, 496. Total number of lots in subdivisions recorded: Past fiscal year, 4,208; year previous, 4,632.

Plats issued in connection with permits: Plats made by this office to accompany applications for building permits (commonly called "building plats"): Past fiscal year, 6,553; year previous, 6,452. Plats made up under regulations covering zoning law, for the erection of garages, motors, etc.: Past fiscal year, 403; year previous, 175.

Miscellaneous plats: Plats of all kinds made up on order of private parties: Past fiscal year, 10,431; year previous, 10,308.

Estimates issued and fees collected: Estimates of cost (issued in triplicate): Past fiscal year, 11,707; year previous, 12,659. Total of fees paid to collector of taxes for work done by surveyor's office: Past fiscal year, \$43,925.50; year previous, \$48,461.90.

Work for the District and Federal Governments: Surveys: Past fiscal year, 125; year previous, 135. Plats recorded (condemnations, dedications, etc.): Past fiscal year, 117; year previous, 101. Reports to inspector of buildings concerning foundation walls in course of erection: Past fiscal year, 1,626; year previous, 1,893. Assessment and taxation plats recorded: Past fiscal year, 1,152; year previous, 709.

For the District and private parties: Total number of surveys made for the District and private parties: Past fiscal year, 4,679; year previous, 5,122.

Total of plats, public and private (including plats drawn in books): Past fiscal year, 14,315; year previous, 14,669.

The following table showing the comparisons as given above is submitted for your information:

| | Fiscal year 1922-23 | Fiscal year 1923-24 |
|---|------------------------|------------------------|
| For private parties: | | |
| Individual lots or parts of lots surveyed in city and county..... | 6,065 | 5,536 |
| Certificates of survey issued covering one or more lots..... | 2,880 | 2,573 |
| Duplicates of above recorded in survey certificate books..... | 2,880 | 2,573 |
| Separate surveys made to verify walls..... | 1,893 | 1,626 |
| Postal card reports concerning walls issued to owners..... | 1,893 | 1,626 |
| Individual buildings inspected as to location of walls..... | 3,305 | 1,356 |
| Large tracts in county surveyed, subdivided, and recorded..... | 12 | 11 |
| Outline surveys in county of unsubdivided tracts..... | 202 | 344 |
| Subdivision plats prepared in duplicate..... | 587 | 547 |
| Duplicate subdivisions prepared for assessor..... | 587 | 547 |
| Subdivisions recorded..... | 496 | 456 |
| Total of individual new lots in subdivisions..... | 4,632 | 4,208 |
| Plats of one or more recorded lots to accompany applications for building permits (commonly called "building plats"), in duplicate..... | 6,452 | 6,553 |
| Plats made up under regulations for theaters, garages, etc..... | 175 | 403 |
| Estimates of cost issued in triplicate..... | 12,659 | 11,707 |
| Plats made up on order of private parties..... | 10,308 | 10,431 |
| Total of fees paid to collector of taxes by private parties..... | \$48,461.90 | \$43,925.50 |

| | Fiscal year 1922-23 | Fiscal year 1923-24 |
|---|------------------------|------------------------|
| For the District of Columbia: | | |
| Surveys made for the District of Columbia..... | 135 | 125 |
| Plats recorded (condemnations, dedications, etc)..... | 101 | 117 |
| Reports concerning walls to building inspector..... | 1,893 | 1,626 |
| Assessment and taxation plats recorded..... | 709 | 1,152 |
| Miscellaneous: | | |
| Total of surveys for the District of Columbia and private parties..... | 5,122 | 4,679 |
| Total of plats, public and private, including plats drawn in books..... | 14,669 | 14,315 |

HIGHWAY PLAN

An appropriation of \$2,000 was made to be used for the purpose of marking on the ground the permanent system of highways in the District of Columbia.

These highways are laid down in accordance with a plan which was made many years ago under an act of Congress which provided for the extension of streets in the District of Columbia as development is made beyond the limits of the original Federal city in an orderly, comprehensive manner. This law is believed to have been one of the most important and advantageous for the proper development of real estate into blocks and lots for home owners that has ever been placed upon the statute books. This plan, which is known as the highway plan, can not be changed or amended in any manner except upon approval of a highway commission composed of the Secretary of War, the Secretary of the Interior, and Chief of Engineers, United States Army, and all new subdivisions made must conform to this plan.

This appropriation has been used to good advantage, and many of these street lines have been marked at street intersections in connection with this work.

About 150 stone monuments have been planted to mark these streets, and some of the prominent streets marked are as follows:

Central Avenue from Benning Road to Southern Avenue SE.

Fourteenth Street through Walter Reed Hospital grounds.

Belt Road from Chesapeake Street to Harrison Street NW.

Broad Branch Road from Rock Creek Park to the District line.

Canal Road at various points along its line.

Some changes have been made in the highway plan during the past year, it being necessary each year to make changes for practical reasons as development takes place or because more advantageous routes can be obtained on account of topographical reasons. The changes made during the past fiscal year are as follows:

Woodley Road between Twenty-ninth Street and Cathedral Avenue NW.

Seventeenth Street between Blagden Avenue and Colorado Avenue NW.

Rock Creek Church Road between Ninth and Tenth Streets NW. (eliminated).

Spring Road between Rock Creek Church Road and Tenth Street (widened).

Princeton Place between New Hampshire Avenue and Rock Creek Church Road NW. (widened).

Davenport Street between Thirty-second Street and Connecticut Avenue NW.

Varnum Street between Iowa Avenue and Fourteenth Street (eliminated).

Webster Street between Iowa Avenue and Arkansas Avenue (eliminated).

An appropriation of \$1,500 has been provided for the past year and for several years previous to that to carry on this work of revising the highway plan, which has been used in drafting and computing work in making these changes as outlined above.

These two small appropriations used to carry on the work in connection with the highway plan should be made again the coming fiscal year and carried on as a continuous appropriation for this work.

SUBDIVISIONS

There has been the usual amount of activity going on in subdivision work outside of the original city limits.

Some of the new subdivisions made are as follows:

Subdivision by the Chevy Chase Land Co., squares 1743 to 1748, inclusive, at Belt Road and Western Avenue.

Subdivision by the Southeast Realty Corporation, squares 5597, 5598, 5604, 5608, and 5615.

Subdivision by James M. Carter, squares 3268, 3271, 3284, 3285, and 3287, between Rittenhouse and Underwood Streets, Third and Fourth Streets NW.

Subdivision by Highview Land Co., squares 5650, 5651, 5677, 5678, 5688, and 5689, at intersection of Bowen Road and Branch Avenue SE.

In all these cases it is necessary to mark the block corners of the new subdivisions with stone monuments, and the fees collected for platting these new subdivisions include also the cost of the survey work, making computations, and planting corner stones.

CONDEMNATION CASES

During the past fiscal year there have been before the courts 36 condemnation cases for streets, alleys, parks, etc., and 12 alley cases. Of these 48 cases 18 were confirmed by the court, some being dismissed and others carried over to the present fiscal year.

The total of damages awarded by the juries in the cases confirmed amounted to \$139,823.15 in all, \$118,020.69 for streets, parks, etc., and \$21,802.46 for alleys.

These figures will show the magnitude of this condemnation work.

Some difficulty has been experienced in prosecuting condemnation cases to a conclusion on account of the juries not being able to find benefits equal to the amount of damages and court costs.

It is thought some provision should be made whereby such cases can be successfully carried through the courts and these cases pushed to a conclusion. The general law upon which condemnation cases are prosecuted requires that the total amount of damages and

the court costs shall be paid for from the assessments for benefits as found by the jury, and special legislation is required to provide an appropriation where the assessments for benefits can not be found by the jury to equal the total amount of the damages and court costs. In many cases, especially where there are improvements on the property to be condemned, the jury is unable to find sufficient benefits to pay the awards.

Following are the streets acquired during the past year by condemnation or dedication:

Arkansas Avenue between Thirteenth and Sixteenth Streets.

Buchanan Street between Fourteenth Street and Arkansas Avenue.

Allison Street between Fourteenth Street and Arkansas Avenue.

Webster Street between Fourteenth Street and Arkansas Avenue.

Davenport Street east of Connecticut Avenue to Linnean Avenue.

Davenport Street west of Connecticut Avenue.

Bellevue Terrace between Garfield and Jewett Streets.

Jewett Street west of Bellevue Terrace.

Brandywine Street between Connecticut Avenue and Reno Road.

Fourteenth Street Road (now Ogden Street) between Fourteenth and Sixteenth Streets NW.

Shannon Place and U Street SE.

Third Street between Rhode Island Avenue and Adams Street N.E.

Franklin Street between Eighteenth and Twentieth Streets N. E.

Lane Place and Lee Street NE.

Widening "A" Road west of Sixteenth Street.

Minnesota Avenue between Hunt Place and Washington Railway & Electric Co. right-of-way.

A table showing the condemnation cases in court during the past fiscal year and the cases which have been confirmed by the court is on file in this office.

PARKS

The question of parks is one of vital interest to the residents of the District, and a park system should be provided throughout the District, just as a street plan is provided, by acquiring from time to time park areas before development and improvements prevent the acquisition of the most desirable land for this purpose.

Congress has recognized this fact, and during the past fiscal year, by legislation, a park commission was created, known as "The National Capital Park Commission," whose function is to go into this important question and determine just what areas should be acquired and to take the necessary steps for their acquisition.

This commission is composed of the Chief of Engineers, United States Army, the Engineer Commissioner of the District of Columbia, Director of National Park Service, Chief of Forestry Service, officer in charge of public buildings and grounds, the chairman of the Senate Committee on the District of Columbia, and the chairman of the House Committee on the District of Columbia.

This commission now has under consideration the acquisition of many important park areas in the District, among them being sev-

eral which have been recommended by this office for several years past.

This office has recently recorded a large park area donated to the District by Mr. C. C. Glover, which is known as "The Glover Parkway and Children's Playground." This park comprises a large area along Foundry Branch, on both sides of Arizona Avenue, between Massachusetts Avenue and Reservoir Street NW., containing in all approximately 77½ acres. This is a valuable donation and constitutes quite an addition to the park system of the District, and the donor, Mr. Glover, is to be commended for the public-spirited and generous motives which prompted the gift of this valuable area to the District.

The following small areas were acquired during the past year for small parks at street intersections:

Square north of square 931, at Florida Avenue, West Virginia Avenue, and L Street NE.

Square 4351, at Twenty-eighth Street, Douglas Street, and Bladensburg Road NE.

Square 3526, at Second Street, Prospect Street, and Eckington Terrace NE.

Square 5420, at Minnesota Avenue, Thirty-sixth Street, and Croftut Place SE.

Square 5443, at Thirty-fourth Street, Minnesota Avenue, and D Street SE.

Square 4542, at Thirty-fourth Street, Minnesota Avenue, and E Street SE.

Parcel 156/39, at Twentieth and Jackson Streets NE.

RENO

A movement was started during the past year to acquire the subdivision of Reno for park, school, playground, water, and street purposes. This subdivision is ideally located for this purpose, being situated on one of the highest spots in the District, and is the center of what is to be a great business and residential area.

The subdivision was made in 1869, with streets 25 and 30 feet wide, and with very small lots. Since the subdivision was made the improvements erected have been mostly of a cheap or modest character, the streets being too narrow to permit of standard improvements.

The subdivision is out of harmony with the highway plan, which was adopted some years later, and will therefore prevent the development of the highway plan in an orderly, comprehensive manner. This irregular, ill-devised plan makes an objectionable subdivision, and will remain a blight upon this locality for all time to come if not eliminated. The only way that this objectionable spot can be eliminated so that the city can develop in harmony with the surrounding territory would be to condemn the entire area, composed of about 52 acres.

It can well be seen by a study of the highway plan that this is a great blight upon this section of the District, and its influence

will be felt even outside its limits. The surrounding territory is being developed by high-class residents, and it is evident to anyone who has made a study of the development of the District that this point will be heart and center of all this section of the District. The development of the surrounding territory is growing rapidly, and if blocked by this misfit subdivision, will be a great reflection upon those responsible for the development of the city plan.

Besides the advantages accruing from the elimination of this subdivision, there are other considerations which are of interest. Besides being on the highest site in the District, with an elevation of 420 feet, it is the site of old Fort Reno, one of the old Civil War defenses of the city of Washington, and is therefore of great historical value. This old fort can be restored within the park area.

In addition the water department must have additional land for the extension of the high-service reservoir, and an appropriation has been made, it is understood, for that purpose. It is impracticable, however, to locate at this point now on account of the impossibility of closing the streets and alleys within the area desired.

The public-school authorities have inspected this property and are anxious to establish here a junior high school with an athletic field. This rapidly growing section demands such a school, and there is no location as attractive as the one within these limits.

A committee of prominent citizens was called together at a meeting in the board room of the commissioners, and they all heartily indorsed this project, with the belief that it would be a very advantageous project to the District and the residents of this section if it could be acquired and utilized as outlined.

PERSONNEL OF OFFICE

The office force has diligently and efficiently performed the vast amount of work coming before the office during the past year—work which is of a character that must be done speedily and accurately—and commendation is due the employees for the competent services rendered.

M. C. HAZEN,
Surveyor.

THE ASSISTANT TO THE ENGINEER COMMISSIONER.

REPORT OF INSPECTOR OF BUILDINGS

WASHINGTON, D. C., *July 31, 1924.*

SIR: I submit herewith annual report covering the transactions of the building division during the fiscal year ended June 30, 1924. This does not include the report of Federal Government operations during the year.

Statement of permits issued from July 1, 1923, to June 30, 1924

| | Number | Value | | Number | Value |
|-----------------------------|--------|-------------|----------------------------------|--------|------------|
| Brick: | | | Brick—Continued. | | |
| Apartments..... | 81 | \$5,734,000 | Stores and flats..... | 1 | \$20,000 |
| Auto repair shop..... | 1 | 2,000 | Studio..... | 1 | 12,000 |
| Bakery..... | 1 | 20,000 | Temple..... | 1 | 285,000 |
| Banks..... | 3 | 266,000 | Theaters..... | 1 | 140,000 |
| Business building..... | 1 | 75,000 | Theater and office building..... | 1 | 806,000 |
| Cathedral..... | 1 | 675,000 | Transformer station..... | 1 | 7,000 |
| Chapel..... | 1 | 20,000 | Warehouses..... | 20 | 301,400 |
| Churches..... | 7 | 316,500 | Hollow tile: | | |
| Club..... | 1 | 10,000 | Dwellings..... | 7 | 93,500 |
| Convents..... | 2 | 80,000 | Garages..... | 20 | 7,550 |
| Department store..... | 1 | 250,000 | Repairs..... | 1 | 1,000 |
| Dwellings..... | 1,425 | 12,868,365 | Concrete: | | |
| Factory..... | 1 | 50,000 | Church..... | 1 | 4,000 |
| Film studio..... | 1 | 64,000 | Dwellings..... | 2 | 12,800 |
| Garages..... | 487 | 1,625,618 | Garages..... | 81 | 105,770 |
| Gas stations..... | 13 | 83,400 | Gas stations..... | 2 | 2,800 |
| Hospital..... | 1 | 200,000 | Gas storage holder..... | 1 | 275,000 |
| Hotel..... | 1 | 300,000 | Repairs..... | 1 | 600 |
| Laboratory..... | 1 | 90,000 | Storage plant..... | 1 | 60,000 |
| Laundries..... | 3 | 60,500 | Theater..... | 1 | 1,200 |
| Library..... | 1 | 61,000 | Metal: | | |
| Lodges..... | 2 | 72,000 | Garages..... | 1,847 | 416,599 |
| Market..... | 1 | 59,000 | Greenhouses..... | 2 | 1,000 |
| Mission buildings..... | 2 | 250,000 | Sheds..... | 14 | 14,755 |
| Museum office building..... | 1 | 964,081 | Store..... | 1 | 1,000 |
| Nurses' home..... | 1 | 125,000 | Frame: | | |
| Office buildings..... | 10 | 764,000 | Café..... | 1 | 1,000 |
| Print shop..... | 1 | 50,000 | Church..... | 1 | 9,500 |
| Post office..... | 1 | 8,000 | Dwellings..... | 647 | 3,393,842 |
| Power house..... | 1 | 17,000 | Garages..... | 271 | 94,995 |
| Repairs..... | 1,946 | 3,019,729 | Greenhouses..... | 1 | 2,000 |
| Retaining wall..... | 1 | 255 | Ice house..... | 1 | 1,200 |
| Schools..... | 4 | 659,000 | Repairs..... | 760 | 297,504 |
| Service stations..... | 5 | 70,500 | Sheds..... | 160 | 31,075 |
| Sheds..... | 8 | 17,775 | Machinery: | | |
| Shops..... | 4 | 29,200 | Elevators..... | 75 | 598,297 |
| Stables..... | 2 | 1,250 | Motors..... | 298 | 177,487 |
| Stores..... | 137 | 1,317,650 | Total..... | 8,368 | 39,403,207 |
| Stores and apartments..... | 6 | 1,818,500 | | | |
| Stores and dwellings..... | 5 | 28,000 | | | |
| Stores and offices..... | 2 | 81,000 | | | |

Distribution of improvements in sections

| | Buildings | Repairs, etc. |
|----------------|-------------|---------------|
| Northeast..... | \$1,436,475 | \$226,084 |
| Southeast..... | 1,560,015 | 154,446 |
| Northwest..... | 11,916,263 | 2,398,854 |
| Southwest..... | 593,760 | 125,232 |
| County..... | 19,215,530 | 1,776,545 |
| Total..... | 34,722,046 | 4,681,161 |
| Sum total..... | 39,403,207 | |

Comparative statement for years 1923 and 1924

| | New buildings | Repairs, etc. | Dwellings | Apartments | Business buildings |
|----------------|---------------|---------------|-----------|------------|--------------------|
| 1924..... | 3,012 | 5,356 | 2,079 | 81 | 832 |
| 1923..... | 3,478 | 5,938 | 2,460 | 81 | 937 |
| Decreases..... | 466 | 582 | 381 | | 85 |

Valuation of building operations, including awnings and signs:

| | |
|-----------|----------------|
| 1924..... | \$39, 403, 207 |
| 1923..... | 57, 690, 038 |

Decrease..... 18, 286, 831

Permits issued, number, including awnings and signs:

| | |
|-----------|---------|
| 1924..... | 11, 446 |
| 1923..... | 12, 191 |

Decrease..... 745

Estimated number of buildings in the District of Columbia

| | Brick | Tile | Concrete | Stone | Frame |
|----------------------------|---------|------|----------|-------|---------|
| 1924, erected..... | 2, 246 | 27 | 89 | | 651 |
| 1924, razed..... | 81 | | | | 78 |
| Total..... | 2, 165 | 27 | 89 | | 573 |
| 1923..... | 74, 098 | 389 | 276 | 2 | 28, 743 |
| Total number standing..... | 76, 263 | 416 | 365 | 2 | 29, 316 |

A comparison of the foregoing report with that for the fiscal year 1923 shows a difference in the value of building operations in round numbers of \$18,000,000 decrease in the present year; the difference in the number of permits was 745.

The falling off in operations indicated by the foregoing comparison is, however, more apparent than real as to the trend in construction activity, as the plans filed and the permits issued during the first two months of the present fiscal year argue a greater volume of operations than was conducted in 1923.

The most important feature of the tabulation, taken in connection with the summaries for the last several years, is the evidence it affords in support of the opinion that in the volume of building operations the District has definitely settled upon a plane of normal activity approximately three times as great as obtained theretofore.

This being the case, it is believed essential and proper that attention should be urged to the fact that the building inspection division has been handicapped for some time past by reason of inferior equipment, inadequate facilities, and lack of space. Recently, for example, a week elapsed during which the office was without permit books, owing to the lack of funds against which to charge the cost thereof.

The problem of space in which to place file cases must soon be faced; the desks used by the assistant inspectors are unsuited to the purpose; the administration of the zoning bureau is obstructed by the absence of filing convenience; the smooth dispatch of work is impossible because of the constant difficulty experienced in getting necessary office supplies, due to the lack of appropriation.

The administration of the zoning law and regulations has grown each year since the act became effective, until now it has become one of the most important functions of the office. There is no separate appropriation to meet the expense incurred, with the result that the allotment made to the inspector of buildings' office must be drawn upon.

There has been no division of the district government the work of which has increased in a greater degree than has the work of the building inspection division. Aside from the zoning branch, the increase has been about 150 per cent, and this increased work has become so stabilized as to be normal, yet no substantial recognition has been taken of this fact, except for an appropriation for temporary inspectors, which is unfair to the department, an unfairness emphasized by the fact that the department must deal so largely in direct personal contact with the public, which demands such prompt and efficient service as intelligent and close attention to duty aided by adequate facilities will permit.

There seems to be a feeling on the part of the general public to more carefully regard the instructions of the building department in matters pertaining to construction. This attitude is to be desired, since it evidences a spirit of cooperation, while at the same time it places an increased burden on the personnel of the department, which is already severely taxed by the normal amount of work.

Increased numbers of requests have been received for examination of falling plaster, settling of floors, broken window arches, and other matters trifling in themselves but contributing to a serious accident. The department appreciates this confidence which the public places in it and hopes to be able to better meet their approval in the future.

Permits are being issued at the rate of 60 a day, meaning that each inspector receives an average of 6 permits a day for his territory. Upon a check recently made of the number of various kinds of jobs now under way within the various territories, it was found that each inspector has on his book an average of 280 permits for work under operation.

There are at present under construction 36 buildings involving structural-steel framing, including such buildings as the Cosmopolitan Theater, Colored Masonic Temple, Kappa Lodge Temple, etc., and 56 reinforced concrete structures of over four stories in height. These buildings alone require from nine months to a year to complete and necessitate many inspections and delicate construction problems to be settled.

The department points with pride to the confidence which the builders of the large reinforced structures have in the vigilance of the inspectors of this department.

The inspection of elevators has assumed such proportions as to merit consideration of means to increase the personnel so as to guarantee absolute safety of operation in this type of public vehicle. This department has recently assumed the inspection of all elevators within the Federal buildings, imposing a vastly increased amount of work upon the present personnel, which is hard pushed to perform its normal work. The installing or examination of elevators requires from two to four hours on each machine, therefore it can be readily seen that a single building such as our larger hotels or department stores would require an inspector's full time for one or two days.

The present force of temporary inspectors should be made permanent. The desirability of this is self-evident, as the time has passed when such a force may be needed for merely emergency or temporary purposes. The office could not possibly be acceptably conducted with

a less number of employees than now engaged. Besides, a temporary status is apt to operate against the morale of an employee because of the uncertainty of tenure and the natural inclination to look elsewhere for a fixed engagement, and it certainly tends to seriously handicap the efficient administration of the department.

It is urgently recommended that the present force of temporary inspectors be made statutory or regular employees, and that no appropriation for temporary men be sought, and that a contingent and miscellaneous appropriation, increased by at least \$1,500, be asked of Congress, the amount mentioned to be allotted to the building inspector's office in excess of the amount so allotted for the present fiscal year.

The expenses of the division during the past year, including \$15,000 for temporary inspectors, amounted to \$56,321.65, and the receipts to \$59,063, a difference of \$2,741.35.

There were issued 3,206 conforming and 542 nonconforming certificates of occupancy and 416 elevator operators' licenses in addition to the 8,368 building permits as listed in the above tabulation.

JOHN W. OEHMANN,

Inspector of Buildings.

THE ASSISTANT TO THE ENGINEER COMMISSIONER.

REPORT OF THE INSPECTOR OF PLUMBING

WASHINGTON, D. C., *August 27, 1924.*

SIR: I submit herewith the forty-second annual report of the plumbing inspection division of the engineering department.

During the last year there were 26,648 inspections on plumbing work in new buildings, 5,249 inspections of plumbing work in old buildings, and 12,760 inspections in connection with complaints made of conditions of plumbing and guttering and spouting in old buildings, making a total of 44,657 plumbing inspections made by this office. The average number of inspections made by the field force was a little less than 13 per day, and the largest number of inspections in any one day was 31.

COMPLAINTS

Of the 12,760 complaint inspections made during the year (practically one-fourth of the entire field work) about one-half were complaints of defective plumbing in old houses, for which correction notices were served, and about one-half related to sheet-metal gutters and rain leaders and leaking roofs. Practically all of the gutter and downspout complaints, all of the leaky roof complaints, and about one-half of the defective plumbing complaints originated from other departments and were referred to this office for prosecution.

REGULATIONS

Several minor changes were made in the regulations during the past fiscal year, all of which had to do with the simplification of

plumbing practice and, in one instance, a very considerable saving to the small home owners, without in any way lowering the sanitary standard.

POLICE COURT CASES

During the year 22 warrants were obtained (nearly three times as many as for last year). Twenty of these cases were against unlicensed plumbers and 2 of them against licensed plumbers violating the regulations. The court exacted fines in 19 cases, took the personal bonds of 1, and 2 cases were nolle prossed, as the work was done before warrant was returned. A total of \$260 was collected in fines. It is noteworthy that no case brought before the court by this office was decided adversely by the said court.

PLUMBING BOARD

The plumbing board held 24 meetings and examined 84 plumbers, of whom 12 passed and were granted license, so that at the close of the fiscal year there were 259 registered master plumbers in the District, about 220 of them being actively engaged in business; there were also 7 registered gas fitters.

PUBLIC CONVENIENCE STATIONS

There were in operation throughout the year four convenience stations, open from 6 a. m. until midnight, with two shifts of attendants, each working nine hours per day. The largest station, that at Seventh Street and Pennsylvania Avenue NW., accommodated 4,885,060 persons; that at Thirteen-and-a-half Street and Pennsylvania Avenue NW., 3,570,391; that at Ninth and K Streets NW., 3,055,837; and that at Fifteenth and H Streets NE., 1,892,371, making a total patronage of about 13,500,000. The cash receipts for the year amounted to \$7,791.99 and consisted of 5-cent fees received for use of pay toilets, commissions received on telephone service, etc., being about 35 per cent of the actual cost of operation of the stations.

An effort should be made to add at least one station in the business section each year until the congested centers of the city are adequately served.

A. R. MCGONEGAL,
Inspector of Plumbing.

To the ASSISTANT TO THE ENGINEER COMMISSIONER.

REPORT OF INSPECTOR OF STEAM BOILERS

WASHINGTON, D. C., *August 22, 1924.*

SIR: I have the honor to submit through Mr. J. William Downing, acting inspector of buildings, the following report for the fiscal year ending June 30, 1924, together with fees received and expenses incurred:

| | |
|--|-----|
| Boilers inspected..... | 450 |
| Boilers inspected for District of Columbia (no fee)..... | 36 |
| Boilers condemned as unfit for further use..... | 10 |

| | |
|--|----------|
| Cases of scale and deposit..... | 65 |
| Cases of defective setting..... | 35 |
| Cases of defective steam gauges..... | 10 |
| Cases of defective tubes..... | 50 |
| Cases of defective boiler plates..... | 25 |
| Cases of working pressure reduced..... | 10 |
| Total amount received..... | \$2, 250 |
| Total amount of expenses incurred..... | 310 |
| | 1, 940 |

Very respectfully,

E. F. VERMILLION,
Inspector of Steam Boilers, D. C.

The INSPECTOR OF BUILDINGS.

REPORT OF THE PERMIT CLERK, ENGINEER DEPARTMENT

WASHINGTON, D. C., August 7, 1924.

SIR: I have the honor to submit the following report of the permit clerk's office giving the number of permits issued during the fiscal year ended June 30, 1924:

| | |
|--|---------|
| Water connections..... | 2, 911 |
| Repairs..... | 673 |
| Specials (no fees)..... | 80 |
| Sewer connections..... | 2, 920 |
| Repairs..... | 738 |
| Specials (no fee)..... | 978 |
| Gas connections and mains..... | 3, 356 |
| Repairs..... | 157 |
| Specials (no fee)..... | 12 |
| Electric connections and underground construction..... | 3, 686 |
| Repairs..... | 13 |
| Conduits..... | 688 |
| Manholes, build and connect with sewers..... | 330 |
| Specials (no fee)..... | 26 |
| Air pipe lines and private conduits..... | 13 |
| Fences to inclose parkings..... | 399 |
| Guard stones in alleys..... | 7 |
| Pave parkings..... | 171 |
| Poles—erect, replace, and remove..... | 1, 138 |
| Miscellaneous..... | 14 |
| | 18, 310 |
| Permits of various kinds for work in public space..... | 5, 698 |
| | 24, 008 |

Fees of \$1 were paid for 17,214 permits; permits for which no fees were paid, 6,794.

Record cards were made of all files referred to this office, permits issued, or reports made and files returned to the divisions having supervision of inspections of work for which permits were issued.

Applications were filed according to location, and report of excavations in public space were made to the engineer of highways for necessary repairs.

H. M. WOODWARD,
Permit Clerk.

To the INSPECTOR OF BUILDINGS.

REPORT OF THE ELECTRICAL ENGINEER

WASHINGTON, D. C., *October 10, 1924.*

SIR: I have the honor to submit the following report of the operations of the electrical department for the fiscal year ended June 30, 1924.

STREET LIGHTING

The street-lighting system at the beginning of the fiscal year consisted of 21,256 lamps—11,316 gas and 9,940 electric (787 arc, 9,153 incandescent): on June 30, 1924, there were 21,823 lamps—11,519 gas and 10,304 electric (819 arc, 9,485 incandescent); an increase of 203 gas and 364 electric (32 arc, 332 incandescent), a total increase of 567 lamps, compared with 548 in 1923. Of the 1,017 lamps newly connected (gross) 586, about 58 per cent, were either designation lamps or of the next lowest powered gas or electric. The increase in aggregate candlepower of the street-lighting system is from approximately 1,848,300 to approximately 1,929,900, about 4.4 per cent. The project of bringing the street lighting throughout the District to the very necessary much higher standard has been carried forward in preparation. The committee on lighting needs, appointed by the commissioners, has made its report, a general plan of treatment has been approved by the commissioners, additional designs of ornamental lamp-posts, consistent with those now in use, have been approved by the Fine Arts Commission, subject to approval of details of models, and preparations are practically completed for application of the plan in the coming year on representative thoroughfares to the extent of the funds provided. It is confidently expected that the improvement to be made will demonstrate the advisability of further progress under the plan.

ARC LIGHTING

There has been no change from 283 in the number of 6.6-ampere magnetite arc lamps. There has been an increase of 32 in the 4-ampere magnetite arc lamps, to a total of 536 connected June 30, 1924. Of these, 20 were added on Pennsylvania Avenue NW. between Seventeenth Street and Washington Circle, 6 in the vicinity of Fourteenth Street and Park Road NW., 2 at intersection of New Hampshire Avenue, M, and Twenty-first Streets, and 4 scattered.

INCANDESCENT ELECTRIC LIGHTING

The number of incandescent lamps added (other than designation lamps) is 564, discontinued 253, a net increase of 311, being 132 of 60 candlepower, 31 of 100, 4 of 200, 139 of 250, and 5 of 400 candlepower. Of the incandescent lamps added, there were placed four 400-candlepower lamps at intersection Pennsylvania Avenue and Seventeenth Street NW.; seventy-five 250-candlepower on Rhode Island Avenue, Fourth Street to District line NE.; thirteen 250-candlepower on H Street, Fourteenth to Seventeenth Streets NW.; thirteen 250-candlepower at Connecticut Avenue, vicinity of Rhode

Island Avenue and vicinity of Florida Avenue; twenty-five 100-candlepower, Kenilworth Avenue NE.; twenty-three 100-candlepower, Woodley Road; fourteen 100-candlepower, D Street and Maryland Avenue SW.; twenty-nine 60-candlepower in Takoma Park; seventeen 60-candlepower, Cleveland Avenue; nine 60-candlepower, Queens Chapel Road; seven 60-candlepower, Grant Road; seven 60-candlepower, Woodland and Normanstone Drives; the remainder scattered in lots of six or less.

The total number of incandescents (other than designation lamps) connected June 30, 1924, was 9,253, compared with 8,942 at the close of the preceding year.

MANTLE GASLIGHTING

The number of mantle gas lamps added was 398, discontinued 179, a net increase of 219. The total mantle gas lamps connected June 30, 1924, was 11,130 (10,820 60-candlepower, 310 120-candlepower), compared with 10,911 (10,759 60-candlepower, 152 120-candlepower) at the close of the preceding year. The additions were individual or in small lots widely scattered. Of the 60-candlepower gas lamps, 129 were changed from upright to inverted mantle.

DESIGNATION LAMPS

The number of designation lamps added was 23 (2 gas and 21 electric), and the number discontinued was 18 gas, a net increase of 5; of the 18 lamps discontinued, 3 were replaced by electric. The additions were all scattered. The discontinuance of 15 gas not replaced by electric was due to substitution of street-designation signs on existing arc-lamp posts for gas-lighted signs on separate posts. The total of designation lamps connected June 30, 1924, was 621 (389 gas, 232 electric), as compared with 616 (405 gas, 211 electric) at the close of the preceding year.

LIGHTING ALONG STEAM RAILROADS

The situation with respect to the several suits brought by the District of Columbia against certain railroad companies for repayment for sums expended for the lighting of streets, avenues, etc., adjacent to their several right-of-way, remains as reported for the past four years. The new trial of typical case in the lower court, necessitated by ruling of the court of appeals, has not been reached. The sum to be added in claim for the fiscal year is \$9,968.10.

SIGNAL SYSTEM

The fire-alarm telegraph, the police-patrol signal, and the telephone systems have been operated and maintained, and each has expanded slightly to meet, in part at least, the growing requirements.

Fire-alarm boxes added to the system number 25 (15 public and 10 private), and 1 private box was discontinued, a net increase of 24, to a total in service June 30, 1924, of 806 (630 public, 176

private). Boxes connected by underground wires were increased by 27, to a total of 690, and boxes connected by overhead wires were decreased by 3, to a total of 116.

Reference is invited to report of fiscal year 1923 on serious need of extension of fire-alarm system as to boxes in the suburbs, and the recommendation therein repeated.

Careful inspection, maintenance, and repair service on the apparatus has been maintained. Through most intimate cooperation with fire department organizations, methods of personnel operation on additional alarms have been improved.

The number of fire alarms received and transmitted through fire-alarm headquarters was 2,711, compared with 2,826, 2,033, 1,795, and 1,815 in the next four preceding years; this includes 41 "additional" alarms (18 second, 13 third, 8 fourth, and 2 fifth), compared with 34 (19 second, 10 third, and 5 fourth) in the next preceding year. False alarms numbered 278, compared with 210, 181, and 145 in the next three preceding years, the false box alarms (198) being nearly 16 per cent of the total regular box alarms, compared with under 13 and above 14 per cent in the next two preceding years. The number of regular box alarms was 47 per cent of the total of box and local (exclusive of "additional") alarms, compared with 44 and nearly 50 per cent in the next two preceding years.

The number of police-patrol boxes added was 2, discontinued 3, a net decrease of 1, compared with increases of 3 and 12 in the next two preceding years, making the total connected June 30, 1924, 489; of these, 390 are connected on underground and 99 on overhead wires. Due to establishment of twelfth precinct and to changes in precinct boundaries incident thereto, 62 boxes were changed as to station connection.

The needs of the police-patrol system as to extension are fairly well met annually, but reference is invited to 1923 report on need of completing the modernization of the system inaugurated in 1910 and the recommendation therein repeated.

The number of telephones added, connected to the two private branch exchange switchboards, under the jurisdiction of this department, the main District of Columbia P. B. X., Main 6000, and the fire-alarm headquarters P. B. X., Main 20, was 23, and 8 were discontinued, a net increase of 15, identical with that of preceding year. Connected to other District P. B. X. switchboards, which are tie-line connected to Main 6000 switchboard, additions were made as follows:

Police department, 5 added, 1 discontinued, net increase, 4; Franklin School, 3; Miner Normal School, 1; House of Detention, 1 extension; Gallinger Hospital, 30. Board of Children's Guardians, 1 switchboard with 9 telephones installed. National Training School for Girls (without connection to Main 6000), 1 switchboard with 11 telephones installed. The number of telephones of the entire District of Columbia system was increased by 75 (compared with 97 and 26 in the next two preceding years) to a total connected June 30, 1924, of 1,625, exclusive of 28 portable sets in service, the property of the District of Columbia, used by the fire department and the electrical department.

The number of cells of storage battery in service on fire-alarm, police-patrol, and local circuits has been increased by 518 to a total of 2,692, incident to increase in number of box circuits, fire-alarm system, relieving certain such circuits of overload.

The distribution equipment for the composite signals system (fire-alarm, police-patrol, and telephone) has been affected by the installation of approximately $7\frac{3}{4}$ miles of underground cables, containing 444 miles of conductors, the withdrawal of 0.3 mile of underground cable, of approximately $2\frac{1}{2}$ miles of conductor, and the withdrawal of approximately 2 miles of aerial cable, of approximately 87 miles of conductor, a net increase of approximately $5\frac{1}{2}$ miles cable, 355 miles conductor. Grand total of composite distribution in service June 30, 1924, 184,498 miles cable, 7,435,958 miles conductor.

This distribution system is inadequate to meet the demands of growth of the system and to provide reasonably safe reserve capacity for emergency.

Further consideration of utilizing radio communication in certain municipal functions has been resumed.

POLES AND OVERHEAD WIRES

The regulation of the erection of poles, the stringing of overhead wires, and of the maintenance of same in safe condition in the streets and other public spaces has been carried on. The operations of the wire-using parties have resulted in an aggregate net increase during the year of 1,097 poles (965 line and 132 guy), bringing the record total of all electric poles on June 30, 1924, to 23,056 (21,577 line, 1,479 guy). The list of pole owners comprises the United States, the District of Columbia, and 16 companies (the steam railroads being lumped as one), one company having become defunct; more than 79 per cent of the poles are owned by, and nearly all the year's increase is by, two of the companies; the United States owns 298 and the District of Columbia 480, a combined Government ownership of less than $3\frac{1}{2}$ per cent of the total; the only change in Government ownership in the year is the increase by 1 by the District of Columbia. The increase of total, 1,097, compares with 1,045 and 912 of the next two preceding years, evidencing continuance of exceptional suburban development; the number of telephone poles in streets and avenues within "the prescribed area" of act of Congress approved June 30, 1902, has been increased by 3. The policy of inducing joint use has again resulted in retarding the increase in number of poles.

ELECTRIC INSPECTION—WIRES AND APPARATUS

In the operations under the act of Congress to regulate electrical wiring in the District of Columbia, approved April 26, 1904, and the regulations thereunder:

The total number of permits issued in connection with the installation of wires and apparatus on private property was 9,495, compared with 9,791, 8,029, and 6,217 in the next three preceding years.

Fees paid to the collector of taxes, \$16,264, compared with \$16,164, \$17,284, and \$16,170.

Number of inspections recorded, 21,827, compared with 22,817, 17,284, and 16,170.

Approximate kilowatts represented by permits issued, 17,013, compared with 10,014 in the preceding year.

Reference is made to the reports of the past several years, 1920 in particular, in the matter of need of increased personnel for this service, and the statements and recommendations therein again repeated. The situation, by reason of arrearages, justifiable complaint of delays, hampering of work by persistent solicitations, etc., is scandalous: a service, apparently universally recognized by property owners as valuable and desired, is being poorly rendered because of physical limitations. It is to be noted that while the number of permits and number of inspections are 3 or 4 per cent less this year than last, the average size of the job appears by the record more than 75 per cent greater. It is evident by the record that the saturation point of efficient inspection has been passed.

MISCELLANEOUS

The department made specifications or plans and specifications for and supervised the introduction of electric work (where started) in the following municipal properties:

Completed: Hine Junior High School, clock and bell system; Nurses' home, Gallinger Municipal Hospital, interior fire-alarm system; Anacostia pumping station, motor service equipment.

Under construction: Highway Bridge across Potomac River, control equipment of draw.

Prepared but not started: New Central High School, lighting improvement, auditorium. Workhouse and reformatory, transmission line and apparatus.

The department lent its services to the municipal architect in the preparation of plans and specifications and in supervising the introduction of electric work in the following municipal properties:

Under construction: Armstrong Manual Training School (addition), lighting, power, telephones, clock and bell system. Western High School (addition), lighting, power, telephones, clock and bell system. Charles W. Raymond School, lighting, power, telephone and bell system. Bernard T. Janney School, lighting, power, telephone and bell system. Head house and wharf, Norfolk & Washington Steamboat Co., lighting and telephones. Nurses' home, Tuberculosis Hospital, lighting and telephones.

The department also cooperated with various heads of departments and offices, determining the most advantageous schedule of service rate on new electric installations, canvassing for advantageous changes of schedule with changes of use conditions in old installations, partial audit of vouchers, advice on purchases, testing, etc.

WARREN B. HADLEY,

Electrical Engineer, District of Columbia.

ASSISTANT TO THE ENGINEER COMMISSIONER.

REPORT OF MUNICIPAL ARCHITECT

WASHINGTON, D. C., *September 5, 1924.*

SIR: I have the honor to submit herewith the fifteenth annual report of the office of the municipal architect for the fiscal year ended June 30, 1924.

The work in the municipal architect's office consists of the preparation of plans, specifications, and the superintendence of the construction of all buildings erected by the District of Columbia, consisting chiefly of schools, fire-engine houses, and police stations, and, in addition, the preparation of drawings and estimates for new buildings and repairs to existing buildings for the various municipal institutions, such as the Home for the Aged and Infirm at Blue Plains, the National Training Schools for both boys and girls. Plans of all buildings are submitted to the Fine Arts Commission for approval before work on contract plans is begun.

The repair shop, which is an adjunct to the municipal architect's office, is charged with the upkeep and repair work required for the various buildings of the school system as well as other municipal institutions.

A separate report on the repair shop is forwarded herewith.

The development of plans and the construction of buildings for the reformatory and workhouse at Lorton, Va., also comes under this office, and the report of the engineer in charge is forwarded herewith.

The following buildings were under construction at the time of the submission of the last annual report, and have since been completed:

School building to replace the Smothers School, located between Forty-fourth, Forty-fifth, Clay, and Brooks Streets NE. By the act of June 16, 1921, a sum of \$1,544,000 was appropriated for the erection of a number of school buildings and the purchase of sites for buildings. The appropriation made for the erection of a 4-room building to replace the Smothers School was \$70,000, but the said act stipulated that the aggregate sum mentioned should constitute one fund for the purposes named. Advertisement for bids for the construction was made November 10, 1921. The bids submitted under this solicitation were rejected, as they exceeded the amount of the appropriation for this building. Readvertisement for bids was made January 15, 1923, and contract was executed March 2, 1923, with David J. Phipps, in the sum of \$73,538. The work was completed September 24, 1923, at a cost of \$75,654.50. The direct system of heating and ventilating has been installed, but it will be eventually changed to the split system. Cubic contents, 207,640 cubic feet. Cost per cubic foot, 45.3 cents.

Addition to Lovejoy School, located at Twelfth and D Streets NE. By the act of June 29, 1922, \$125,000 was appropriated for the erection of an 8-room addition. Contract was executed March 16, 1923, with the Schneider-Splidt Co., for the construction of the addition, including plumbing, electrical, heating, and ventilating work, in the sum of \$115,900. The work was completed October 16, 1923, at a cost of \$121,824.60. The split system of heating and ventilating is in use in this building. Cubic contents, 306,510 cubic feet. Cost per cubic foot, 37.81 cents.

Addition to the Garrison School, located on Twelfth Street, between R and S Streets NW. By the act of Congress of June 29, 1922, \$140,000 was appropriated for the erection of an 8-room addition. Contract was executed April 17, 1923, with George E. Wyne, for the construction of the addition, including plumbing, electrical, heating, and ventilating work, in the sum of \$136,350. The work was completed November 30, 1923, at a cost of \$136,604.64. The direct-indirect system of heating and ventilating is in use in this building. Cubic contents, 328,470 cubic feet. Cost per cubic foot, 41.51 cents.

Bancroft School, located at Eighteenth and Newton Streets NW., in the Ingleside section. By the act of June 29, 1922, \$140,000 was appropriated for the erection of an eight-room extensible building. An additional sum of \$22,260 was appropriated by deficiency act of April 2, 1924. Contract was executed May 11, 1923, with George E. Wyne, for the construction, including mechanical equipment, in the sum of \$139,300. The work was completed August 11, 1924, at a cost of \$155,584.23. Cubic contents, 330,349 cubic feet. Cost per cubic foot, 42.17 cents.

Langley Junior High School, located on T Street between First and Second Streets NE. The appropriation act of June 16, 1921, authorized the commissioners to enter into contract for this building at a cost not to exceed \$300,000, and appropriated \$100,000 for the beginning of the erection. An additional \$200,000 was appropriated by the act of June 29, 1922. Contract was executed January 23, 1923, for the building, including plumbing, electrical and mechanical equipment work, in the sum of \$293,250, with M. Seretto. The work was completed January 4, 1924, at a cost of \$295,629.55. The split system of heating and ventilating is in use in this building. Cubic contents, 1,006,792 cubic feet. Cost per cubic foot, 29.13 cents.

Macfarland Junior High School, located on Iowa Avenue between Upshur and Allison Streets NW. The appropriation act of June 16, 1921, authorized the commissioners to enter into contract for this building at a cost not to exceed \$300,000, and appropriated \$100,000 for the beginning of the erection. An additional \$200,000 was appropriated by the act of June 29, 1922. Contract was executed January 23, 1923, for building, including plumbing, electrical, and mechanical equipment work, in the sum of \$293,250, with M. Seretto. The work was completed January 4, 1924, at a cost of \$293,239.05. The split system of heating and ventilating is in use in this building. Cubic contents, 1,006,792 cubic feet. Cost per cubic foot, 29.13 cents.

Police precinct station No. 12, located at Seventeenth Street and Rhode Island Avenue NE. By the act of March 3, 1917, \$40,000 was appropriated for the erection of this station house. By the act of June 29, 1922, an additional \$20,000 was appropriated for the purpose. Contract was executed June 15, 1923, with the G. G. Loehler Co., for the construction of this station house, including mechanical equipment, in the sum of \$55,376. The work was completed October 23, 1923, at a cost of \$56,336.68. The direct system of steam heating is employed in this building, and the direct-indirect in the cells. Cubic contents, 163,200 cubic feet. Cost per cubic foot, 33.93 cents.

Police precinct station No. 7, located on Volta Place, between Thirty-third Street and Wisconsin Avenue NW. Contract was exe-

cuted June 29, 1923, with the G. G. Loehler Co., for making alterations in this station house, in the sum of \$7,380. The work was completed October 29, 1923, at a cost of \$7,500.

Police precinct station No. 9, located on Ninth Street between E and F Streets NE. Contract was executed June 29, 1923, with the G. G. Loehler Co., for making the alterations in this station house, in the sum of \$7,213. The work was completed October 29, 1923, at a cost of \$7,313.

Building construction started subsequent to July 1, 1923:

Thomson School, located at Twelfth and L Streets NW. By the act of February 28, 1923, \$60,000 was appropriated for beginning construction of a third-story addition to this building, and the commissioners were authorized to enter into contract for said addition at a total cost of not to exceed \$135,000. An additional sum of \$75,000 was appropriated by the act of June 7, 1924. Contract was executed July 17, 1923, with David J. Phipps, for the construction of the addition, in the sum of \$75,269. The work was completed January 17, 1924, at a cost of \$75,757.06. Cubic contents, 242,645 cubic feet. Cost per cubic foot, 31.02 cents.

Addition to Armstrong Manual Training School building. By the act of June 29, 1922, \$100,000 was appropriated for beginning the erection of an addition to this building, to include assembly hall, additional classrooms, shops, and laboratories, and the commissioners were authorized to enter into a contract for said addition at a cost not to exceed \$500,000. An additional \$200,000 was appropriated by the act of February 28, 1923, and \$200,000 more by the act of June 7, 1924. Contract was executed January 19, 1924, with George E. Wyne for the construction of this addition, including plumbing, electrical, and heating and ventilating work, in the sum of \$450,700. This contract time will expire January 19, 1925. The work to date has cost \$484,447.96. The split system of heating will be employed. Cubic contents, 1,409,790 cubic feet. Cost per cubic foot, 31.96 cents.

Addition to Western High School, located at Thirty-fifth and Reservoir Streets NW. By the act of February 28, 1923, \$100,000 was appropriated for beginning the remodeling of and the construction of an addition to this building to provide a new assembly hall, gymnasiums for boys and girls, and additional classrooms, and the commissioners were authorized to enter into a contract or contracts for said remodeling and extension at a cost not to exceed \$550,000. An additional \$450,000 was appropriated by the act of June 7, 1924. Contract was executed February 26, 1924, with Parsons & Hyman for the construction work, including plumbing, electrical, heating and ventilating, in the sum of \$478,300. The contract time will expire February 26, 1925. The work to date has cost \$478,392. The vacuum, steam direct-indirect system of heating will be used in this building. Cubic contents, 1,609,324 cubic feet. Cost per cubic foot, 29.72 cents.

Mount Pleasant Branch Library, located at Sixteenth and Lamont Streets NW. Amount donated for this building and equipment by the Carnegie Foundation, \$200,000. The plans for this building were prepared by Mr. Edward L. Tilton, of New York. Contract was entered into April 18, 1924, with the Schneider-Spliedt Co., for the construction of the building, including plumbing, electrical,

heating and ventilating work, in the sum of \$140,140. The contract time will expire February 18, 1925. The work to date has cost \$145,450. Cubic contents, 269,629 cubic feet. Cost per cubic foot, 51.96 cents.

Contracts for furniture and equipment have been entered into up to date to the extent of \$29,553.

Nurses' home at the tuberculosis hospital, located at Fourteenth and Upshur Streets NW. By the act of February 28, 1923, \$35,000 was appropriated for the erection of a nurses' home. Contract was entered into April 11, 1924, with the C. A. Hofferberth Construction Co., for the construction work, in the sum of \$33,885. The contract time will expire September 25, 1924, and the work is expected to be completed by that date. The work to date has cost \$33,947. The vacuum system of heating will be employed in this building. Cubic contents, 89,999 cubic feet. Cost per cubic foot, 37.65 cents.

Head house at the wharf used by the Norfolk & Washington Steamboat Co., located on Water Street, at foot of Seventh Street SW. The work consists in the reconstruction of the head house which was destroyed by fire January 26, 1924. The amount collected from fire insurance companies, for replacing the improvements at the wharf, was \$56,000. Contract was executed April 16, 1924, with V. T. H. Bien, Inc., for removing the fire-damaged portions of the head house and sheds, and for the reconstruction of the head house on a remodeled basis, including plumbing, electrical and heating work, in the sum of \$37,621. The contract time will expire August 1, 1924, and the work will be completed September 2, 1924. The work to date has cost \$45,066. The steam heating system will be employed in this building.

Charles W. Raymond School, located at Spring Road and Rock Creek Church Road NW. By the act of February 28, 1923, \$130,000 was appropriated for the erection of an eight-room extensible building. Advertisement for proposals was made, and proposals were submitted on August 8, 1923, but as all bids exceeded the amount available, contract could not be entered into. By the deficiency act of April 2, 1924, an additional \$10,000 was appropriated. Contract was entered into April 22, 1924, with Charles H. Tompkins Co. for the construction, including plumbing, electrical, heating, and ventilating work, in the sum of \$133,700. The contract time will expire December 22, 1924, and the work will doubtless be completed at or near that time. The work to date has cost \$133,887. The vacuum heating system will be employed in this building. Cubic contents, 380,046 cubic feet. Cost per cubic foot, 35.19 cents.

Bernard T. Janney School, located at Wisconsin Avenue and Albermarle Street NW. By the act of February 28, 1923, \$160,000 was appropriated for the erection of an eight-room extensible building, including a combination assembly hall and gymnasium. Contract was entered into July 22, 1924, with George E. Wyne for the construction of the building, including a combination assembly hall and gymnasium, in the sum of \$151,837.40. Work was started July 21, 1924, and the contract time will expire May 22, 1925. Cubic contents, 466,490 cubic feet. Cost per cubic foot, 32.55 cents.

Addition and alterations to engine house No. 16, located on D Street between Twelfth and Thirteenth Streets NW. By the act of

June 29, 1922, \$5,000 was appropriated for repairs to this engine house. By the act of February 28, 1923, an additional \$5,000 was appropriated, and by the act of June 7, 1924, a further sum of \$15,000 was appropriated. Bids for the work were received June 18, 1923, but they were rejected as they exceeded the amount available. Contract was entered into August 6, 1924, with the C. A. Hofferberth Construction Co. for additions and alterations in the sum of \$15,313. The contract time will expire December 6, 1924.

Besides the preparation of plans and specifications for the above-mentioned buildings, plans and specifications for about 50 other pieces of work, such as heating systems in engine houses, police stations, and school buildings, and equipment for various buildings, were prepared in this office, the contract prices therefor amounting to \$145,052.

The contracts entered into by this office for the fiscal year beginning July 1, 1923, and ending June 30, 1924, amounted to a total of \$1,542,029.

I wish to call attention to some of the disadvantages of the existing system of asking for appropriations from Congress for buildings. At present it is assumed that a school building can be built for a fixed sum, irrespective of location, condition of site, character of subsoil, and many other essential features affecting the cost and design of the proposed structure.

This scheme has proven both poor policy and poor economy. Properties bought by the District for school sites are often on filled ground of uncertain depth; some are open valleys which must, in addition to being filled, be provided with specially designed footings, as in the recent addition to the Armstrong School, where provision had to be made for crossing a 12-foot trunk sewer involving two exterior and two interior walls, the existence of which was not known until the drawings were begun. Often high embankments must be cut down to provide a suitable level for the building. Frequently it is necessary to make a specially designed building to meet the conditions imposed by the peculiar character of the site, as in the case of the Bancroft School. These are all uncertain factors in determining the cost of a structure and should be provided for in a more definite and businesslike way.

I would therefore recommend that sites be purchased far enough in advance of building requirements to permit of proper investigation as to subsurface conditions, and that the estimates be based on the structure designed to meet each individual condition. This will insure much more comprehensive and accurate estimating on which to base requests for congressional appropriations.

It is generally assumed that the whole of an appropriation is available for the cost of a building, that when \$140,000 is appropriated for an eight-room school building it is presumed that no demands other than the building itself will be made upon this money. The following are some of the items which consume a goodly portion of the appropriation: Cost of drafting, inspection, and printing; cost of topographical survey; cost of sewer, water, gas, and electric connections. Charges of various District of Columbia departments, cement house, sand wharf, etc. Grading, seeding, sodding, walks,

and driveways. These items frequently consume 5 per cent of the appropriation.

I believe Congress would be sympathetic with a statement involving all the elements for which an appropriation should be asked to complete in its entirety any given project.

Recent appropriations have not been adequate to fully cover the present cost of building. Since 1921, due to increases in wages and cost of materials, the price of building has advanced 20 to 25 per cent, so that \$140,000 is not sufficient to cover the cost of the type of eight-classroom buildings which are being built at the present time. In addition, the Board of Education is constantly increasing the number and character of facilities for these schools, such as principals' offices, teachers' rooms, private toilet facilities, kitchenettes, stage equipment, etc.

The recent bidding on the health school will illustrate the increase in cost. The appropriation is \$150,000. The lowest bid received was \$170,300. This building was designed in 1921, based on prices at that time. Had it been built at that time it could have been built for 80 per cent of the present bid price, or \$136,240, which would have been well within the appropriation. The effect of the conditions noted is that we are compelled to erect buildings stripped of all architectural detail, both inside and out, to leave the grounds unfinished, and omit all walks, driveways, and approaches. Unless these items are provided for in a later appropriation they remain undone or funds must be supplied from the appropriation: "Public schools, District of Columbia, repairs to buildings and grounds."

ALBERT L. HARRIS,
Municipal Architect.

To the ASSISTANT TO THE ENGINEER COMMISSIONER.

REPORT OF THE SUPERINTENDENT OF REPAIRS

WASHINGTON, D. C., *September 5, 1924.*

SIR: I have the honor to forward herewith my annual report showing the operations of this shop during the fiscal year ending June 30, 1924.

There was appropriated by Congress: For public schools, repairs to buildings, \$300,000; all was expended except \$139.33. For repairs to engine houses, \$20,000, all of which was expended except \$3.93. For repairs to station houses, \$7,000, all of which was expended except \$3. For repairs to police court, \$2,000, all of which was expended except \$6.61. The foregoing amounts represent the actual cost of 4,921 separate jobs.

Aside from the repairs made out of the appropriation for repairs to school buildings and grounds, we made \$16,897.86 worth of emergency repairs upon school buildings, which consisted mostly of repairs to heating plants and lighting systems. These repairs were absolutely necessary, and the only way in which they could be made was to use \$1,225 worth of deposits made by the parent-teachers associations for electrical work and to deplete our stock by \$15,672.86. The laborers and mechanics used on these extraordinary repairs

were paid from the available balance out of the original appropriation for repairs to school buildings and grounds. The work of the shop was very much hampered by the depletion of the stock, but there was no other course open to us. We have reserved a balance in the appropriation of \$139.33 to pay any outstanding bills which may come in on account of excess deliveries of material.

In addition to the work covered by the above appropriations, which are under the supervision of the superintendent of repairs, this shop did \$70.146.86 worth of work on various buildings controlled by other departments.

We inspected and repaired steam boilers in over 100 buildings owned by the District.

Modern lighting systems were installed complete or in part in 26 school buildings. It is our intention to equip as many buildings each year not already provided with an adequate lighting system as is possible without neglecting more urgent repairs.

New steam-heating plants were installed in three old school buildings and the hot-air heating plants in all of the schools were overhauled and repaired.

During the year there was turned over to us by the War Department a great deal of surplus war material which was placed in stock and was and will be used upon general repair work wherever practicable. By the use of this material we were able during the past year to make a great many more repairs than we could have done out of the appropriations by Congress.

Our assistant superintendent of repairs and two foremen are still without automobile transportation for their daily inspection of work in progress. Two of our motor trucks have outlived their usefulness. In the estimates for the coming year we have requested that the assistant superintendent and the two foremen be furnished with Ford runabouts and the purchase of two additional trucks, the old trucks to be given in exchange as part payment. Since our foremen have been given automobiles for daily inspection work at least 50 per cent better services have been rendered.

The estimated repairs to school buildings for the fiscal year beginning July 1 were approximately \$1,000,000. Congress appropriated \$300,000 to do this work. The number of buildings is increasing each year, and the repairs upon the old buildings are also increasing. It was impossible to make any but the most urgent repairs with the appropriation available.

Attention is invited to the urgent need of additional storage room at this shop for both material and our automobiles. At the present time the automobiles are stored at night in the hallways, the tin shop, the machine shop, the stables, and one of them in a fire department garage. We have asked Congress to give us an appropriation to take care of these items in the next appropriation act. There has never been any garage facilities at this shop.

The organization of the shop is the same as it was last year, composed of five annual employees, the superintendent, assistant superintendent, 3 clerks, and from 115 to 225 per diem employees of the various trades. This number increases and decreases according to the season of the year and the amount of work on hand.

We have followed the practice of the last few years in compiling this report. Should more detailed information be desired, we can furnish a detailed statement of the cost of every job, or we can furnish the expenditures under each class of work upon each and every building.

HENRY STOREY,
Superintendent of Repairs.

To the MUNICIPAL ARCHITECT.

Public schools, District of Columbia, 1924, repairs to buildings and grounds

| | |
|---|---------------|
| Appropriation | \$300,000. 00 |
| Stock on hand June 30, 1924 | 48,252. 01 |
| Deposits by various parent-teachers' associations | 1,225. 00 |
| Total | 349,477. 01 |
| Expended as follows: | |
| Carpentering | \$77,930. 68 |
| Tinning | 18,084. 95 |
| Heating | 86,353. 28 |
| Plumbing | 17,972. 90 |
| Painting | 39,561. 65 |
| Glazing | 5,467. 59 |
| Grading and cement work | 17,178. 62 |
| Gas and electrical work | 47,933. 07 |
| Miscellaneous | 224. 40 |
| Gas, electricity, ice, coal, telephones, car tickets, forage (pro rata share for upkeep of shop) | 5,219. 75 |
| Engineer department stables (pro rata share) | 970. 97 |
| Stock on hand June 30, 1924 | 32,439. 82 |
| Unexpended balance | 139. 33 |
| | 349,477. 01 |

NOTE.—The total expenditures for repairs during the fiscal year 1924 amounted to \$316,897.86, while the appropriation for repairs was only \$300,000. The amount of the expenditures of \$16,897.86 in excess of the appropriation was owing to extraordinary emergency repairs which it was absolutely necessary to make. (These emergency repairs were mostly to the heating plants in the various buildings.) We requested a supplementary appropriation to cover these expenditures of \$25,000, but Congress did not see fit to grant it; therefore, the only course left for us was to use \$1,225 worth of deposits made by the parent-teachers' association and to deplete our stock to the extent of \$15,672.86. This depletion of the stock has handicapped the shop greatly. The installing of three new steam-heating plants in old buildings alone cost \$26,772, which had to be paid for out of the repair fund.

Fire department, District of Columbia, 1924, repairs to engine houses

| | |
|---|--------------|
| Appropriation | \$20,000. 00 |
| Expended as follows: | |
| Carpentering | \$6,937. 89 |
| Tinning | 1,137. 17 |
| Heating | 1,963. 03 |
| Plumbing | 1,426. 32 |
| Painting | 6,475. 89 |
| Glazing | 136. 51 |
| Cement paving and grading | 1,060. 74 |
| Gas and electrical work | 270. 19 |
| Miscellaneous | 139. 25 |
| Pro rata for upkeep of shop, telephones, ice, fuel, gas, and electricity | 449. 08 |
| Balance | 3. 93 |
| | 20,000. 00 |

Metropolitan police, District of Columbia, 1924, repairs to stations

| | | |
|---|------------|------------|
| Appropriation | | \$7,000.00 |
| Expended as follows: | | |
| Carpentering | \$1,143.69 | |
| Tinning | 191.01 | |
| Heating | 2,367.03 | |
| Plumbing | 486.27 | |
| Painting | 2,325.36 | |
| Glazing | 37.88 | |
| Cement work | 51.51 | |
| Gas and electrical work | 137.55 | |
| Miscellaneous | 91.89 | |
| Pro rata upkeep of shop, forage, ice, fuel, gas, and electricity, telephones | 164.81 | |
| Balance | 3.00 | |
| | | 7,000.00 |

Police court, District of Columbia, 1924, repairs to buildings

| | | |
|----------------------------------|----------|------------|
| Appropriation | | \$2,000.00 |
| Expended as follows: | | |
| Carpentering | \$424.85 | |
| Plumbing | 518.74 | |
| Painting | \$22.47 | |
| Glazing | 18.95 | |
| Steam fitting and ironwork | 51.92 | |
| Electrical work | 156.46 | |
| Balance | 6.61 | |
| | | 2,000.00 |

Outside appropriations, 1924

In addition to repair work on school buildings, engine houses, police stations, and the police-court buildings, we did work on outside appropriations as below:

| | |
|--|-----------|
| Juvenile court | \$32.05 |
| Municipal court | 181.58 |
| Schools (various) | 3,372.20 |
| Community centers | 1,617.54 |
| Playgrounds | 2,033.04 |
| Police, contingent | 651.05 |
| House of detention | 605.80 |
| Harbor patrol | 24.69 |
| Fire, contingent | 426.16 |
| Repairs to fire boat | 28.48 |
| Health department (various) | 1,085.38 |
| Water department | 116.95 |
| Gallinger Hospital, repairs | 722.75 |
| Tuberculosis hospital | 558.44 |
| Industrial home school, colored | 1,986.62 |
| Industrial home school (various) | 2,515.53 |
| Municipal lodging house | 658.11 |
| National Training School for Girls | 1,152.62 |
| Public convenience stations | 648.54 |
| Electrical department | 320.64 |
| Public Library | 380.96 |
| Markets | 1,986.63 |
| Coroner | 95.59 |
| Charities | 86.61 |
| Damages | 68.49 |
| Work on various construction jobs under continuous appropriation | 48,790.41 |
| Total | 70,146.86 |

NOTE.—The above represents work which was done by this shop during the fiscal year 1924 upon written request from the officials in charge of the various appropriations.

INSPECTION OF STEAM BOILERS

During the fiscal year 1924 the District of Columbia repair shop inspected and repaired the steam boilers in 100 buildings owned by the District of Columbia.

REPORT OF CONSTRUCTING ENGINEER, DISTRICT OF COLUMBIA WORKHOUSE AND REFORMATORY

LORTON, VA., *August 26, 1924.*

SIR: I have the honor to submit herewith report of the operations of the construction division of the workhouse and the reformatory for the fiscal year ending June 30, 1924. This report describes briefly the various construction projects in progress with some building costs. More detailed information can be furnished on request.

The principal work done during the past fiscal year consisted of construction of permanent buildings at the reformatory, continuing construction on the industrial railroad, starting the construction of permanent buildings at the workhouse, and a number of repair jobs at both institutions.

REFORMATORY BUILDINGS

On June 30, 1924, there were 14 buildings completed or under construction, consisting of 5 shops, 4 dormitories, 2 disciplinary dormitories, 1 washhouse, 1 boiler house, and 1 dining hall and kitchen. Of these the shops, disciplinary dormitories, boiler house, and 2 dormitories are practically complete, except for some interior finishing. Three of these buildings are now in service, the 2 disciplinary dormitories are ready for use, and it is planned to have 2 dormitories ready to occupy in about four months. The other dormitories under construction have brickwork to window-sill height, and about one-half the foundation is in place for the dining room and kitchen building.

The steam-heating mains were installed in part of the tunnel system and heat turned on in three shops. The following figures show the approximate cost of the various types of buildings. These figures have been determined from the cost of bought material and hired labor actually used in each building. The estimated cost of completing the interior work in buildings is included in these figures.

| | |
|---|---------|
| Shop with basement..... | \$9,800 |
| Shop without basement..... | 5,500 |
| Disciplinary dormitory with cells..... | 17,800 |
| Disciplinary dormitory without cells..... | 8,600 |
| Dormitory | 7,600 |

As the dining hall and kitchen building will probably cost about \$50,000, sufficient money should be provided so as not to retard construction on this building.

Besides the permanent construction work considerable repair and remodeling work was done to the heating system of the temporary buildings to insure more efficient operation and effect a saving of coal.

INDUSTRIAL RAILROAD

Work on this project was somewhat retarded on account of the bad weather during the early spring, but at the close of the fiscal year the work was progressing more rapidly, and before winter it should be possible to haul all necessary building material to the new reformatory site over this road. During the past year the bridge over the main highway was constructed and about 4,600 feet of track laid, most of which is ballasted and ready for operation. Another locomotive is urgently needed, as the hauling of supplies and the increasing demands for construction materials will tax the locomotive now in service very heavily. A locomotive driven by a gasoline engine that will answer our requirements could be obtained for less than \$5,000. Construction should continue on this road to provide a connection to the main line of the Richmond, Fredericksburg & Potomac Railroad. With such connection completed a great saving in the cost of transporting supplies will be effected, especially in the delivery of coal.

WORKHOUSE BUILDINGS

Construction was started in June on the first dormitory of the permanent buildings. This group consists of six dormitories, four shop buildings, a hospital and disciplinary dormitory, a recreation hall, a commissary, a bathhouse, and an administration building. Under favorable conditions it should be possible to complete one dormitory, and have two other buildings about half complete at the end of the present fiscal year. Special attention should be given the heating system and other mechanical equipment. With new boilers and a modern heating system in service at least 20 per cent of the coal now used should be saved.

BRICK PLANT

The brick plant, our main industry for manufacturing building material, should be put in first-class condition throughout, to insure continuous operation during the entire year. After new machinery is installed it is suggested that sufficient funds be obtained each year for necessary equipment and construction to remodel this plant and increase its output.

Other work done during the year included rebuilding the electrical transmission line and preparing same for higher voltage, preparing some plans and data for improvements to the water system, and making technical reports on establishing new industries, etc.

Respectfully submitted.

HERBERT R. HAAR.
Constructing Engineer.

To the MUNICIPAL ARCHITECT.

REPORT OF THE SUPERINTENDENT OF THE WATER DEPARTMENT

WASHINGTON, D. C., *September 12, 1924.*

SIR: The annual report of the water department for the fiscal year ended June 30, 1924, is submitted herewith.

The total length of cast-iron water mains of various sizes laid during the year is 75,611 feet, or 14.30 miles. The total length of water mains in service of all sizes is 688 miles.

At this point I wish to call attention to the serious handicap under which the department is working in connection with this class of work, it being impossible, with the limited appropriation for extension of the distribution system, for the department to keep pace with the demands for service mains to building operations.

The mean daily water consumption for the year is 64,069,344 gallons, giving a mean daily per capita consumption of 131.57 gallons, the city population being taken as 486,936.

The most important feature of the water main construction, designed to relieve Brookland and the northeast suburban communities, was the completion of one link of a trunk main, 30 inches in diameter, extending from First and Adams Streets to Rhode Island Avenue and Eighth Street NE. This has afforded considerable relief through connections with existing water mains and those laid to meet the new main. This branch of work is more fully outlined under the report on engineering and construction.

Improvements carried on at the District pumping station include the replacement of one Westinghouse engine, which was coupled to a 75-kilowatt generator with an Ames unafflow engine. There were minor changes in the outflow piping at the pumping station to enable us to augment a lower water service with a pump which normally runs on a higher service. This is a very valuable asset in case a pumping unit should suddenly break down.

At the Anacostia pumping station there was installed a 3,000,000-gallon, direct-connected, electric-motor-driven, centrifugal pump, manufactured by the De Laval Co. This pump is in addition to the present plunger-type pump supplying the first high service of Anacostia and Congress Heights.

The pumpage for the fiscal year was 293,107,530 gallons more than in 1923. The greatest amount pumped in one day occurred September 4 and was 39,840,340 gallons. The least pumped in one day was August 19 and amounted to 30,461,720 gallons. The total operating expenses (including overhead) of pumping 1,000,000 gallons of water into the water mains was \$10.01. This is a slight increase over the cost for the previous year.

A marked extension of the Anacostia first high service was completed to the high area adjacent to Deanwood and in the vicinity of the Smothers School, situated at Forty-fourth and Brooks Streets NE.

Detailed reports of the several subdivisions of the department are on file in the office of the superintendent, much of which could not be included here on account of order limiting allotted space.

I wish here to record my appreciation of the loyal and efficient services rendered by the employees under my supervision.

J. S. GARLAND,
Superintendent Water Department.

To the ASSISTANT ENGINEER COMMISSIONER.

ENGINEERING AND CONSTRUCTION

The most important work of the year was the laying of a trunk water main which was authorized by act of Congress.

This water main constitutes one link in the system which will provide adequate water service for the northeast section of the city comprising all of Brookland and adjacent communities. This main has been needed for many years and the urgency of the case has been constantly pointed out, but owing to press of other work and limited funds the appropriation was not granted until the present time.

The length of this line was nearly 6,000 feet and its size 30 inches in diameter. The route traversed was as follows:

Adams Street NW. from Flagler to North Capitol Streets, North Capitol from Adams to V Street, V Street from North Capitol Street to Rhode Island Avenue, and Rhode Island Avenue to a point about 400 feet east of the railroad crossing.

The laying of this water main even this far has had a very marked influence toward stabilizing the water pressures in Brookland and adjacent areas as compared with those maintained before this work was done. It will suffice to say that the extreme high places were without water whenever a sudden draft or maximum consumption occurred. Recent records show that the points of high elevation are now constantly served, but they still experience a considerable slump in the water pressure occasionally.

The next link in this important work will be during the coming fiscal year of 1924-25, for which an appropriation has been made to extend the above-mentioned main in Rhode Island Avenue as far as Sixteenth Street NE.

Another trunk water main was installed in the west side of North Capitol Street from K Street to Florida Avenue. It is 16 inches in diameter. This is a much-needed improvement to reinforce the gravity system adjacent to this important street.

During the year this department was called upon on seven occasions to repair broken sections of the 36-inch water main through which condensing water is pumped from the Potomac River to the United States Capitol power plant.

Owing to the progress in making a fill along the north side of Canal Road at College Pond it was found necessary to remove the arched water mains spanning the small creek and replace them with underground lines. If these water mains had been allowed to remain, an excess amount of earth would have been placed above the mains, covering them to a depth which would render them very difficult of access.

Another water main of importance was the replacing of an old 4-inch water main in the south side of K Street between Seventeenth and Eighteenth Streets with new 12-inch pipe. The latter size was necessary in order to serve several large apartments and for general fire protection. The old 4-inch main was badly corroded and partly filled with sediment accumulated during its long service.

An important change in the water service in the Deanwood section was made for the benefit of the higher areas, and a considerable territory was taken off the gravity service and is now served by the first high Anacostia service.

Other improvements consisted in laying 12 and 8 inch water mains, the summary of which in detail will be found in tabulated form in this report.

The construction forces engaged in water-main extensions, erecting fire hydrants, placing valves, installing cast-iron water services to buildings, 3 inch and over, consisted of 4 gangs of about 25 laborers and 2 gangs of about 4 laborers, each superintended by a foreman. In all, nearly 14.30 miles of water mains were laid.

Installation and maintenance of water meters

| | |
|--|----------------|
| District of Columbia meters installed at new locations (inside)----- | 2, 107 |
| District of Columbia meters installed at new locations (outside)----- | 546 |
| Total number of meters installed----- | <u>2, 653</u> |
| District of Columbia meters removed and replaced: | |
| Not registering----- | 2, 714 |
| Leaking----- | 1, 114 |
| Lack of pressure----- | 164 |
| For test----- | 23 |
| On account of noise----- | 53 |
| Defective registers----- | 225 |
| For building purposes----- | 20 |
| Abandoned to new services----- | 94 |
| Total number of District of Columbia meters removed and re- placed----- | <u>4, 407</u> |
| District of Columbia miscellaneous: | |
| Repaired in place----- | 323 |
| Abandoned and removed----- | 191 |
| Adjusted to grade----- | 141 |
| Private meters: | |
| Not registering----- | 341 |
| Reset with repairs----- | 385 |
| Repaired in place----- | 85 |
| Leaking----- | 133 |
| Lack of pressure----- | 40 |
| Reported for repairs and found O. K.----- | 7 |
| Removed for test----- | 5 |
| Defective registers----- | 4 |
| District of Columbia meters set temporarily in place of private meters-- | 186 |
| District of Columbia meters removed and private meter set----- | 238 |
| Miscellaneous: | |
| Replaced covers on curb boxes----- | 227 |
| Replaced frames and covers----- | 175 |
| Curb boxes adjusted to grade----- | 94 |
| Replaced curb boxes----- | 11 |
| Inspection of service pipes----- | 3, 829 |
| Number of taps installed----- | 2, 867 |
| Taps removed and main plugged----- | <u>53</u> |
| Number of premises paying flat rate----- | 10, 104 |
| Number of premises paying meter rate----- | <u>70, 159</u> |
| Total----- | <u>80, 263</u> |
| Number of meters not registering----- | 9, 820 |
| Percentage of services in use metered----- | 87. 41 |

STEAM ENGINEERING

The following is a summary of the work done at the District pumping station for the year:

Water pumped, figured from plunger displacement:

| | | |
|--------------------------|-----------|-------------------|
| First high service----- | gallons-- | 7, 077, 768, 660 |
| Second high service----- | do----- | 3, 710, 795, 450 |
| Third high service----- | do----- | 1, 592, 042, 000 |
| Total----- | do----- | 12, 380, 606, 110 |

| | | |
|--------------------------|-----------|---------------|
| Fourth high service----- | do----- | 101, 139, 133 |
| Coal burned----- | tons-- | 8, 187 |
| Cylinder oil used----- | gallons-- | 642 |
| Engine oil used----- | do----- | 1, 467 |
| Crank case oil used----- | do----- | 392 |
| Filtered oil used----- | do----- | 399 |
| Turbine oil used----- | do----- | 1, 005 |
| Grease used----- | pounds-- | 547 |
| Waste used----- | do----- | 1, 080 |

The regular force employed at this station in the daily operation of the pumping engines, boilers and auxiliaries, cleaning of machinery, etc., consisted of three crews of three engineers in charge, three assistant engineers, three firemen, three oilers, and three cleaners, working in eight-hour alternate shifts, "six days on and one day off" per week, being relieved on "days off" by an extra engineer crew.

For the fourth high service the water is pumped from the Reno reservoir, which is supplied by the third high service pumps, to an elevated tank by gasoline engines and triplex pumps. This machinery is operated daily by three enginemen who work on eight-hour shifts. The water pumped for this service during the year was 101,139,133 gallons, or a mean of 276,336 gallons daily.

The Anacostia pumping station has been operated without interruption during the year, pumping to the three towers supplying the area east of the Anacostia River. This station is taken care of by four enginemen who work on eight-hour shifts. The water pumped for this service during the year was 189,341,450 gallons, or a mean of 517,327 gallons daily.

The total pumpage for the year at the District pumping station was 293,107,330 gallons more than in 1922-23. The greatest amount pumped in one day (September 4) was 39,846,340 gallons; least in one day (August 19) was 30,461,720, and the average dynamic head against pumps was 137.78 feet. The total operating expenses (excluding overhead) chargeable to pumping was \$123,878.31, as against \$115,748.16 in 1922-23, making the total operative cost (excluding overhead) of pumping 1,000,000 gallons of water into the mains \$10.01. This is \$0.43 per million gallons more than in 1922-23, and is mainly due to the increased cost of labor chargeable to pumping. The average cost of coal per ton for the year was \$7.29, which was \$1.30 less than in 1922-23.

The station duty for the year was 80,734,682 foot-pounds per 100 pounds of coal. This is 2.6 per cent more than the duty obtained during the preceding year, and represents an annual saving of approximately 204 gross tons of coal. This saving in coal may be

attributed almost entirely to the improved economic pumping operations.

Especially important work done during the year includes (1) replacement at this station (in August) of the old Westinghouse engine for driving the 50-kw. shop generator with an Ames uniflow engine, (2) installation of the connection between the second and third high services (which enables us to operate the third high service pumps on the second high service), and (3) installation of the 3 m. g. d. automatically controlled motor-driven De Laval centrifugal pumping unit on the first high service at the Anacostia station (which work was completed on June 30, 1924).

WATER SURVEYS

Activities of this division during the year were confined principally to routing disposal of complaints and the cutting off of abandoned service pipes. The work is classified and prosecuted under headings of "Underground leakage investigations" and "Complaint investigations."

Due to lack of sufficient number of employees it has been impossible to continue the prosecution of routine water surveys for the detection and prevention of underground waste and illegitimate water consumption. The numerous complaints of leaks, water in cellars, low pressure, no water, and of other conditions demanding immediate attention have so occupied this division as to require practically all of the employees upon this work. It was found impracticable to make any systematic surveys for leakage due to the intermittent nature of periods when personnel was available for this work. The nucleus of the original water survey organization was held intact, however, ready for expansion into efficient force when conditions permit. The abandonment of old service pipes no longer in service was accomplished by employees of this division with an encouraging speed. The requests for these abandonments have been accumulating for years and the work is seriously in arrears. The division now has eight men constantly on this work, and it is felt that eventually it can be brought up to date. The past summer has brought in a great number of these requests, however, and the exact status of this work is doubtful. At various times when it has been possible to do so inspectors have been assigned to miscellaneous underground leak investigations and the result of this work is tabulated in the proper statement herewith. The small quantity of leakage shown is due to the decreased activities and not to decreased leakage within the city. There is ample evidence, upon the contrary, that underground conditions are becoming much worse and that eventually the underground surveys must be continued.

Special attention was given to the water consumption at Fort Myer, where a shortage was apparent, and waste of water in the Washington Navy Yard, where the maintaining of proper control of the careless waste is a constant duty of this division. The work at Fort Myer embraced a complete analysis of the day and night flow and the results of this work were fully covered in a special report dated October 30, 1923. The work at the navy yard consisted principally of continuous scrutiny of the night rate of flow and night

inspections when the rate was found above our previously determined minimum.

This division maintained a constant reading of meters and inspection of fixtures in all schoolhouses, police stations, and engine houses. Leaks and wastes in these institutions were practically eliminated by this work.

The water survey division cooperated fully with other divisions of the water department and with the Washington Aqueduct in the matter of supplying data upon flow into Government institutions, pressures at critical points, particularly in the Brightwood service area, pipe capacities, and in other special cases as requested.

The water survey shop was operated continuously upon routine repairs to equipment, special work upon instruments used by this and other divisions of the department, and much experimental work was performed in the matter of perfecting flow-measuring apparatus used constantly by this division.

Full details of all work are given in the tabulated statements which are transmitted each year in uniform style to permit proper comparisons to be made of the yearly results.

STOREKEEPING

The cost of operating the storeroom for the year was 2.61 per cent of the value of material issued and equipment disposed of.

A comparison of the percentage of cost for operating the storeroom for the past 10 years ranges from 4.67 per cent in 1915 to 2.61 per cent in 1924.

The value of material issued and equipment disposed of during the year was \$535,903.99. Collected, stored, weighed, counted, and delivered to the contractors old materials to the value of \$456.11.

All tools and equipment worn out during the year were collected, inspected, and condemned by the survey officer and disposed of as ordered by the auditor. The value of equipment received and issued during the year was as follows:

| | |
|---------------|--------------|
| Material: | |
| Receipts..... | \$516,128.50 |
| Issues..... | 513,713.55 |
| Equipment: | |
| Receipts..... | 57,556.28 |
| Issues..... | 22,190.44 |

The following table shows comparative difference in the value of material and equipment received and issued during the past 10 years:

| Year | Material | | Equipment | |
|-----------|--------------|--------------|--------------|------------|
| | Receipts | Issues | Receipts | Issues |
| 1915..... | \$244,152.74 | \$254,833.36 | \$170,140.38 | \$1,915.94 |
| 1916..... | 255,174.17 | 254,945.05 | 23,461.60 | 30,379.82 |
| 1917..... | 340,157.19 | 331,880.02 | 10,732.97 | 4,748.69 |
| 1918..... | 380,113.88 | 321,578.56 | 42,414.29 | 5,439.46 |
| 1919..... | 343,282.99 | 338,328.15 | 22,804.59 | 16,833.94 |
| 1920..... | 283,213.37 | 290,998.74 | 9,452.00 | 9,369.69 |
| 1921..... | 294,546.32 | 418,566.70 | 21,863.56 | 16,038.57 |
| 1922..... | 350,242.76 | 350,837.75 | 36,673.28 | 23,673.80 |
| 1923..... | 459,178.79 | 468,275.22 | 21,430.07 | 89,069.31 |
| 1924..... | 516,128.50 | 513,713.55 | 57,556.28 | 22,190.44 |

The value of material on hand at the close of the year was \$178,154.32, and the value of equipment in stock and in service at the close of the year was \$681,629.04.

TRANSPORTATION

The transportation equipment consists of 45 automobile trucks, ranging in capacity from a light Ford roadster to a 5½-ton Mack truck. The number of trucks has not been increased during the year, but 12 old trucks were traded in part payment for 12 new trucks.

The following transportation was furnished daily to the various subdivisions: Construction forces, 17 trucks, 8 chauffeurs; engineer division, 2 trucks, 1 chauffeur; leak-repair forces, 2 trucks, 1 chauffeur; valve division, 3 trucks, 1 chauffeur; construction foreman, 1 truck; fire-hydrant division, 2 trucks; revenue division, 5 trucks; water-survey division, 6 trucks; street-hydrant division, 1 truck, 1 chauffeur; superintendent, 1 truck.

Hauled for use by the construction forces and for storage in the property yards 24,620,700 pounds of material, about 12,310 tons. Hauled from construction jobs to various dumps, 2,175 loads of dirt, about 7,613 cubic yards. Hauled from the pumping station to the various jobs and dumps 404 loads of ashes, about 2,020 cubic yards.

The charges for use of our trucks on general hauling, per eight-hour day, are about one-half the rates charged by contractors: 5½-ton truck, with driver, \$16; 1-ton truck, with driver, \$9. While these rates are only about one-half the rates charged by contractors, the total charges for use of our heavy trucks during the year exceeds the cost of maintenance and operation by \$1,783.89. The cost of maintenance and operation of these trucks included gasoline, oils, grease, tires, miscellaneous supplies, material, and labor expended in making repairs, garage rent, drivers' wages, and a charge for depreciation.

TABLE I.—*Cost of work done by the water department for the year ended June 30, 1924*

| Heads of expenditure | Per diem and salaries | Material expended cuts and transportation | Total expenditures | Charge to general account | | Hauling and deposit accounts, Dr. |
|---|-----------------------|---|--------------------|---------------------------|-------------|-----------------------------------|
| | | | | Maintenance | Extensions | |
| Water surveys (detection of leaks)..... | \$16,974.54 | \$1,132.10 | \$18,106.64 | \$18,106.64 | | |
| Maintenance of meters..... | 34,059.90 | 42,149.53 | 76,209.43 | 76,209.43 | | |
| Installation of meters..... | 8,117.06 | 4,878.64 | 12,995.70 | | \$12,995.70 | |
| Office of water registrar..... | 66,773.39 | 6,588.57 | 73,361.96 | 73,361.96 | | |
| Inspection and repair of services..... | 19,792.81 | 2,850.96 | 22,643.77 | 22,643.77 | | |
| Tapping water mains..... | 6,030.27 | 10,897.85 | 16,928.12 | | 16,928.12 | |
| New services installed..... | 58.98 | 49.37 | 108.35 | | 108.35 | |
| Engineering (field survey)..... | 24,798.74 | 1,747.86 | 26,546.60 | | 26,546.60 | |
| Hauling account..... | 19,110.39 | 5,584.17 | 24,694.56 | | | \$24,694.56 |
| Operation and repair of valves, fire hydrants, etc..... | 25,652.60 | 3,478.22 | 29,130.82 | 29,130.82 | | |
| Installation of fire and public hydrants..... | 6,023.92 | 20,062.74 | 26,086.66 | | 26,086.66 | |
| Water mains laid..... | 108,119.75 | 207,256.23 | 315,375.98 | | 315,375.98 | |

TABLE I.—*Cost of work done by the water department, etc.—Continued*

| Heads of expenditure | Per diem and salaries | Material expended cuts and transportation | Total expenditures | Charge to general account | | Hauling and deposit accounts, Dr. |
|--|-----------------------|---|--------------------|---------------------------|-------------|-----------------------------------|
| | | | | Maintenance | Extensions | |
| Repairs to leaks..... | \$24,466.51 | \$8,467.52 | \$32,934.03 | \$32,934.03 | ----- | ----- |
| Maintenance of reservoirs, lodges, and towers..... | 5,497.78 | 2,180.29 | 7,678.07 | 7,678.07 | ----- | ----- |
| Care of grounds..... | 6,828.14 | 186.70 | 7,014.84 | 7,014.84 | ----- | ----- |
| Repayment and deposit work..... | 18,196.67 | 34,979.29 | 53,175.96 | ----- | ----- | \$53,175.96 |
| Replacement work, lowering mains, etc..... | 11,360.03 | 9,456.17 | 20,816.20 | 20,816.20 | ----- | ----- |
| Plans, estimates, and tests..... | 17,311.32 | 600.32 | 17,911.64 | ----- | \$17,911.64 | ----- |
| Care of Bryant Street pumping station..... | 23,484.40 | 3,689.74 | 27,174.14 | 27,174.14 | ----- | ----- |
| Operation and repair pumps, Bryant Street station..... | 46,938.54 | 86,246.38 | 133,184.92 | 133,184.92 | ----- | ----- |
| Operation and repair pumps, Reno station..... | 5,754.01 | 598.86 | 6,352.87 | 6,352.87 | ----- | ----- |
| Operation and repair pumps, Anacostia station..... | 7,438.71 | 3,869.76 | 11,308.47 | 11,308.47 | ----- | ----- |
| Shopwork..... | 21,094.05 | 23,184.40 | 44,278.45 | 44,278.45 | ----- | ----- |
| Furnished other District of Columbia offices..... | 4,819.75 | 6,085.99 | 10,905.74 | 10,905.74 | ----- | ----- |
| Gross expenditures..... | 528,702.26 | 486,221.66 | 1,014,923.92 | 521,100.35 | 415,953.05 | 77,870.52 |

SUMMARY

| | | | | |
|--|--------------|------------------|--------------|----------|
| Expenditures: | | | | Per cent |
| Per diem pay rolls..... | \$134,369.03 | Charge to— | | |
| Salary pay rolls..... | 94,333.23 | Maintenance..... | \$521,100.35 | 55 |
| Total services..... | 528,702.26 | Extensions..... | 415,953.05 | 45 |
| Material expended, cuts, etc..... | 486,221.66 | | | |
| Gross expenditures..... | 1,014,923.92 | | | |
| Less transportation and repayment credits..... | 77,870.52 | | | |
| Net expenditures..... | 937,053.40 | Total..... | 937,053.40 | 100 |

TABLE II.—*Statement of the distribution system, including mains laid by the United States, the District of Columbia, and on account of repayment work*

| Diameter | In service June 30, 1923 | Laid during year ended June 30, 1924 | Abandoned during year ended June 30, 1924 | In service June 30, 1924 |
|-----------------------------|--------------------------|--------------------------------------|---|--------------------------|
| 3-inch.....linear feet..... | 87,021 | 1,121 | 438 | 87,704 |
| 4-inch.....do..... | 155,807 | 1,120 | ----- | 156,927 |
| 6-inch.....do..... | 1,469,245 | 938 | ----- | 1,470,183 |
| 8-inch.....do..... | 1,036,677 | 50,405 | 100 | 1,086,982 |
| 10-inch.....do..... | 9,107 | 7 | ----- | 9,114 |
| 12-inch.....do..... | 430,417 | 12,901 | 1,179 | 442,139 |
| 16-inch.....do..... | 31,213 | 3,176 | ----- | 34,389 |
| 20-inch.....do..... | 141,511 | 25 | ----- | 141,536 |
| 24-inch.....do..... | 36,133 | 8 | ----- | 36,141 |
| 30-inch.....do..... | 58,595 | 5,910 | ----- | 64,505 |
| 36-inch.....do..... | 59,457 | ----- | ----- | 59,457 |
| 42-inch.....do..... | 23 | ----- | ----- | 23 |
| 48-inch.....do..... | 44,172 | ----- | ----- | 44,172 |
| 75-inch.....do..... | 600 | ----- | ----- | 600 |
| Total..... | 3,559,978 | 75,611 | 1,717 | 3,633,872 |
| Stop valves..... | 11,573 | 292 | 68 | 11,797 |
| Fire hydrants..... | 3,918 | 160 | 36 | 4,042 |
| Public hydrant..... | 274 | 21 | 4 | 291 |
| Sanitary fountains..... | 23 | 0 | 0 | 23 |
| Horse fountains..... | 155 | 0 | 1 | 154 |
| Public wells..... | 44 | 0 | 0 | 44 |

TABLE III.—*Statement of length and costs of water mains laid from July 1, 1878, to June 30, 1924, paid from water department funds*

| Diameter | In service June 30, 1923 | Laid during year ended June 30, 1924 | Abandoned during year ended June 30, 1924 | In service June 30, 1924 |
|-----------------------------|--------------------------------|---|--|--------------------------------|
| 3-inch.....linear feet..... | 77, 171 | 7 | 438 | 76, 740 |
| 4-inch.....do..... | 116, 421 | 82 | | 116, 503 |
| 6-inch.....do..... | 1, 079, 373 | 391 | | 1, 079, 764 |
| 8-inch.....do..... | 976, 533 | 49, 584 | 100 | 1, 026, 017 |
| 10-inch.....do..... | 6, 739 | 7 | | 6, 746 |
| 12-inch.....do..... | 374, 143 | 8, 664 | 1, 179 | 381, 628 |
| 16-inch.....do..... | 24, 062 | 3, 176 | | 27, 238 |
| 20-inch.....do..... | 130, 409 | 25 | | 130, 434 |
| 24-inch.....do..... | 15, 653 | 8 | | 15, 661 |
| 30-inch.....do..... | 21, 028 | 5, 910 | | 26, 938 |
| 36-inch.....do..... | 38, 244 | | | 38, 244 |
| 42-inch.....do..... | 23 | | | 23 |
| 48-inch.....do..... | 14, 309 | | | 14, 309 |
| Total..... | 2, 874, 103 | 67, 854 | 1, 717 | 2, 940, 245 |

Total cost to June 30, 1923.....\$4, 801, 863. 63
 Total cost for year ended June 30, 1924.....315, 375. 98

Aggregate cost to June 30, 1924.....5, 117, 239. 61

REPORT OF THE WATER REGISTRAR

WASHINGTON, D. C., *August 28, 1924.*

SIR: I submit herewith the annual report of the revenue and inspection branch of the water department, showing in detail the work accomplished during the year ended June 30, 1924.

WATER RATES

The rate for domestic purposes is charged according to stories and front feet. On all tenements two stories high with a frontage of 16 feet or less, \$6.25 per annum; for each additional front foot or fraction thereof greater than one-half, 39 cents; for each additional story or part thereof, one-third of the charges as computed above.

Business premises are rated according to their size, class, volume of business, and water facilities, and rate from \$1 to \$25. If the flat rate on business establishments reaches \$25 or more, the owner or occupant is required to install a water meter at his own expense.

A minimum rate of \$5.65 will be charged against all consumers supplied with water through meters, which allows the use of 7,500 cubic feet of water during the year; water used in excess thereof will be charged for at the rate of 5 cents per 100 cubic feet.

TABLES

The table of comparative revenues shows a total collection of \$1,146,321.92.

Table 1 shows statement of cash receipts of the water fund.

Table 2 shows comparative statement of revenues.

Table 3 shows general information.

GEO. W. WALLACE,
Water Registrar.

The SUPERINTENDENT, WATER DEPARTMENT.

TABLE 1.—*Statement of collections*

| | |
|--|--------------|
| Water rents: | |
| Flat rate | \$88,519.31 |
| Meters | 941,671.65 |
| Building purposes | 5,667.93 |
| Total | 1,035,858.89 |
| Water-main tax, principal and interest | 109,843.31 |
| Miscellaneous receipts | 619.72 |
| Total | 110,463.03 |
| Total receipts | 1,146,321.92 |
| Taps and stop cocks | 15,596.91 |

NOTE.—Increase of \$60,553.60 in water rents for the year ending June 30, 1924.

TABLE 2.—*Statement of cash receipts of the water fund for the fiscal years from June 30, 1912, to June 30, 1924*

| Year | Water rents | Water-main tax, principal and interest on same | Miscellaneous receipts | Year | Water rents | Water-main tax, principal and interest on same | Miscellaneous receipts |
|------|--------------|--|------------------------|-------------------|--------------|--|------------------------|
| 1912 | \$545,405.47 | \$122,458.81 | \$2,817.50 | 1921 | \$984,055.23 | \$78,989.83 | \$1,557.73 |
| 1913 | 640,008.64 | 138,693.57 | 3,153.81 | 1922 | 943,182.45 | 86,425.56 | 2,455.49 |
| 1914 | 646,296.15 | 86,379.21 | 4,253.20 | 1923 | 975,305.29 | 128,372.29 | 959.21 |
| 1915 | 638,861.89 | 66,107.56 | 3,532.77 | 1924 | 1,035,858.89 | 109,843.31 | 619.72 |
| 1916 | 624,882.18 | 64,647.80 | 1,761.39 | Total. | 9,938,229.69 | 1,049,858.45 | 26,235.45 |
| 1917 | 636,664.31 | 61,990.43 | 2,019.58 | | | | |
| 1918 | 714,388.28 | 34,649.46 | 458.96 | | | | |
| 1919 | 782,159.36 | 28,179.43 | 1,482.58 | 1925 ¹ | 1,040,000.00 | 100,000.00 | 1,000.00 |
| 1920 | 771,161.55 | 43,121.19 | 1,164.01 | 1926 ¹ | 1,045,000.00 | 100,000.00 | 1,000.00 |

¹ Estimate.

TABLE 3.—*General information*

| | |
|---|---------------|
| Consumption of water through meters: | Cubic feet |
| District meters | 723,189,000 |
| District meters in municipal buildings | 62,609,400 |
| Private meters | \$98,330.20.) |
| Private meters in charitable institutions | 27,388,600 |
| Total | 1,711,517,200 |

| Meters in service | In use June 30, 1923 | Installed 1924 | Abandoned 1924 | Total in use June 30, 1924 |
|---|----------------------|----------------|----------------|----------------------------|
| District meters | 63,753 | 2,603 | 283 | 66,073 |
| District meters in municipal buildings | 264 | | | 264 |
| Private meters | 3,354 | 309 | 20 | 3,643 |
| Private meters in charitable institutions | 196 | 11 | 6 | 201 |
| Total | 67,567 | 2,923 | 309 | 70,181 |

| | |
|--|------------|
| Average cost of reading meters | \$0.21 |
| Average cost of computing and making bills | \$0.225 |
| Average payments for premises in which meters were installed | \$7.57 |
| Average payment for flat-rate accounts | \$8.76 |
| Premises receiving an allowance of free water: | |
| Number of institutions | 171 |
| Number of meters | 201 |
| Cubic feet of water consumed | 27,388,600 |
| Allowance of free water | 37,695,000 |
| Number of institutions exceeding allowance | 25 |

Water services:

| | |
|-------------------------------------|---------|
| In use June 30, 1923..... | 77, 679 |
| Installed, 1924..... | 3, 013 |
| Total..... | 80, 692 |
| Abandoned, 1924..... | 407 |
| In use June 30, 1924..... | 80, 285 |
| Metered..... | 70, 181 |
| Not metered..... | 10, 104 |
| Percentage of services metered..... | 87. 41 |

REPORT OF THE SANITARY ENGINEER

WASHINGTON, D. C., *August 30, 1924.*

SIR: The annual report of the sanitary engineer, covering the fiscal year ended June 30, 1924, is submitted herewith.

On June 3, 1924, an agreement was formally entered into between the Commissioners of the District of Columbia and the Washington Suburban Sanitary Commission as to a reciprocal provision for the connection of the sewerage systems in the State of Maryland bordering the District of Columbia and those of the District of Columbia. This agreement was in accordance with act of Congress approved September 1, 1916. No sewage connections to or from Maryland have as yet been made under this agreement.

A bill, concurred in by the commissioners, was during the year introduced in the House of Representatives by Mr. Moore of Virginia, to authorize the Arlington County, Va., sanitary district to connect its sewerage system with the sewerage system of the District of Columbia. At the time of the adjournment of Congress this bill was with the Committee on the District of Columbia.

Under the 1919 District appropriation bill there was appropriated the sum of \$60,000 for the purchase or condemnation of the necessary land for a sewage-treatment works. The site selected for these works is a portion of the Bellevue tract, in the vicinity of the Home for the Aged and Infirm. During the fiscal year 1919, 34.6 acres of land was acquired, and after long court delays there was finally consummated during the fiscal year 1924 the purchase of two additional parcels of land aggregating 33.18 acres. The sum paid for these two latter tracts was \$29,147.52. It is felt that continued efforts should be made to acquire the 10-acre parcel 253¹/₂, as well as reach an agreement with the Baltimore & Ohio Railroad to have them relocate their trackage now traversing District property recently acquired for these sewage-treatment purposes. The time can not be far distant when some preliminary treatment must be given the sewage of Washington, rather than discharge it, as at present, in its raw state into the Potomac River. Based on the latest estimated population for the District of 486,936, the dilution obtaining in the Potomac, based on the flow in cubic feet per minute per thousand of population, is getting dangerously low. For the 17-day period, October 11-27, 1923, the dilution figure was 210, and during this period there was a 7-day period from October 14-20, when the dilution figure dropped to 152. The minimum figure obtained on December 23, 1923, with a dilution of but 122. The above figures

have a considerable factor of safety in that, due to large rural communities, the entire population is not now contributory to the sewer system.

A new departure on the part of the District that developed during the year was allowing the installation of fuel-oil tanks in public space. This concession was made in order that the users of fuel oil might have the same privilege as then enjoyed by coal burners, who were permitted to construct coal vaults in public space.

As the result of a more liberal appropriation, the division was better able to meet the demand for service sewers than during the year 1923, although the demand for this class of sewers is still considerably greater than the available appropriations will permit constructing. At the close of 1924, the service sewers ordered and not built amounted to \$115,804. The appropriations made available for interceptors of the sewage-disposal system are, it is felt, still decidedly inadequate.

There has been prepared in the office of the sanitary engineer a tentative five-year construction program, with the view of striving to bring the sewerage system of the District to date by June 30, 1929. Under this program there would be required an annual construction appropriation during the next four years of approximately \$1,800,000. In comparison with these needs, it might be mentioned that the construction appropriations for the fiscal year 1925 are but \$805,000. The above estimated needs for sewer construction are in addition to any sums which might be required in this period for a sewage-treatment plant.

As the result of a review by the personnel classification board of the professional and subprofessional services of the District, a more equitable classification was arrived at than as originally classified. This review increased the grade of 15 employees of this division out of a total of 43 classified under this heading. In this connection, it is felt that of the 18 employees of this division classified under the clerical, administrative, and fiscal service, about 11 should be advanced in grade in order to put this branch of the work on a par with the other services.

The following is a summary of the sewerage and sewage-disposal systems, as of June 30, 1924:

| | | |
|---------------------------------------|-----------------|---------------|
| Length of sewerage system (miles) : | | |
| Main sewers----- | 156.04 | |
| Pipe sewers----- | 635.19 | |
| | | 791.23 |
| Length of sewage-disposal system----- | | 37.52 |
| Total length----- | | 828.75 |
| Cost of sewerage system----- | \$16,432,298.47 | |
| Cost of sewage-disposal system----- | 6,015,232.96 | |
| Total cost----- | | 22,447,531.43 |

The sanitary engineer has to acknowledge the efficient and loyal support accorded him by the employees of the sewer division. Any accomplishments achieved during the year were made possible by their cooperation.

A brief résumé of the year's activities follows.

OFFICE ENGINEERING

The work of this section comprises the computing, designing, and drafting work incidental to studies for new construction, repairs, or improvements, and for future extensions of the system. This section also has charge of the map work of the division, the file system of drawings, and is charged with the duty of furnishing the public information concerning the sewerage system, particularly as to the availability, function, location, and size of existing sewers as required in connection with building activities. In addition, this section answers or indorses all letters and jacketed files requesting sewer construction.

In connection with underground construction, public-service corporations, there is involved the detailed determination of locations of new extensions of gas mains, electric, telephone and telegraph conduits, with their accessories, as well as supervision of the work done under permits therefor, and the accurate location of all work performed.

During the year, 1,967 plumbing slips were issued as to availability or nonavailability of sewers. There were handled 743 jacketed files, each requiring an indorsement or the preparation of a letter. Of the above files 350 were requests for construction, each case requiring detail work as to sewer sizes and locations, estimated cost, and the preparation of an accompanying plat or blue print showing all pertinent facts. Plats numbering 364 were forwarded to the assessor covering cases where new subdivisions were made abutting existing service sewers, where houses on parcel property were connected to a service sewer, where trunk sewers were construed as service sewers, and as advance notice of pending sewer assessment. In connection with the paving of streets and sidewalks, 466 studies were made as to sewer requirements in order to avoid the cutting of new surface work. In that the establishment of new or the modification of existing street and alley grades affects the existing and future sewer construction, it has been necessary during the year to study 200 cases of proposed surface grades. Incidental to the extension of the sewer system, 15 right-of-way deeds with accompanying plats were prepared, 13 of which were acquired. During the year 43 contracts were prepared, all of which required specifications, plans, and estimated quantities. Many of these contracts required supplementary detailed drawings of junction chambers and other details. In connection with the future layout of the sewer system, 60 studies of drainage areas, run-off and corresponding sewer sizes have been made. Maps have been kept posted to date by the plotting thereon of 205 separate pieces of new sewer construction, 1,122 cases of new subdivisions, splits, alley and street openings or closings, new and revised street grades, and the location of 2,500 new houses constructed in the county. The system of record maps was extended by the addition of 11 new maps and in addition 10 old maps were replaced, as were 22 working maps which had worn out. Miscellaneous plats to the number of 139 were required, making a total of 975 drawings. In conjunction with the above, card indexes reflecting the various work done by this section were kept posted to date.

In connection with public service corporation underground construction, 3,320 permits were prepared during the year, and 5,394 inspections made of construction work. Sixty-one 50-foot scale maps were completed during the year for recording thereon underground construction. A total of 968 record sheets were made. Repairs were made to many record maps which were badly worn, and combination maps were provided in many cases to cover the older unmapped sections of the city. During the course of the year the records of vaults in public space were reviewed and where possible were plotted on record maps. This adds to the value of these maps and will make possible a more comprehensive study of proposed construction in the vicinity of existing vaults. Over 50 District of Columbia fire-alarm and police-patrol box installations were measured and plotted on record maps where such maps were available.

The amendments to the police regulations approved by the Commissioners of the District of Columbia March 4, 1924, permit the installation of fuel-oil tanks in public parking and in existing and proposed vaults in public space. This new regulation adds considerably to the work of this office. Preliminary field studies are necessary in order to ascertain if applicant has complied with existing regulations and if such installation is justifiable. It was necessary for this office to draft an agreement relating to fuel-oil tanks and filling pipes in public space, to be signed by owner or owners of property abutting proposed tank installations, before issuance of permit therefor.

A change in the method of handling permits, which was developed and put into effect in this office July 1, 1923, has resulted in materially improving permit service to the various public-service corporations and private companies. Applications for permits to connect premises with electric conduit, construct manholes, make sewer drains, minor repairs, etc., are now received, prepared, and recorded in this office, and sent directly to the permit clerk, where same are available at once. After permit has been issued the paper is returned and filed permanently in this office, instead of being returned to file in the record division, engineering division, as heretofore. While this procedure adds to the responsibility of this office, and burdens our files with additional records, it appears more businesslike than the former method, it effects a saving in time and stationery, and relieves the record division of caring for about 3,000 papers per annum. It was necessary, due to this change, to create a file for these new papers, and over 2,000 are now filed.

In all streets where new paving or resurfacing was proposed, a careful study was made of existing and needed underground construction, and where considered advisable recommendation was made to the Public Utilities Commission that the respective corporations be required to make such extensions. During the year over 30 plats were made showing needed extensions.

The work performed during the year requiring supervision by this section may be summarized as follows:

| | | |
|------------------------------|---------|--------|
| Gas mains laid | miles.. | 10. 75 |
| Electric conduit laid | do..... | 19. 73 |
| Telephone conduit laid | do..... | 11. 76 |
| Traction conduit laid | do..... | 1. 56 |
| Manholes constructed | | 1, 739 |

| | |
|--|-------|
| Houses connected with gas..... | 2,619 |
| Houses connected with electricity..... | 3,081 |
| Drains to sewerage system from manholes, fire hydrants, air valves, and watering troughs..... | 151 |
| Compressed air lines for inflating automobile tires at curb..... | 11 |
| Vaults constructed in public space..... | 21 |
| Steam mains and conduits laid across public space..... | 5 |
| Fuel oil tanks and filling pipes..... | 12 |

Additional floor space is urgently needed for this section in order to permit of the efficient handling of public-service corporation work.

SURVEYS AND CONSTRUCTION

The work of this section covers all preliminary and detailed survey work required in connection with office studies and design, and the acquiring of all necessary field data for special reports. In addition all field work incidental to sewer construction performed under contract and by day labor is handled. All sewers built under contract are supervised and minor sewers with their appurtenances and storm-water catch basins are constructed by District forces.

Work performed during the year under 37 contracts involved the construction of 8.16 miles of sewers costing \$469,284.24.

Work done by District forces under 420 jobs involved the construction of 7.92 miles of sewers, 218 manholes, and 133 storm-water catch basins. Also 36 manholes were adjusted and 52 special Y and T branches inserted. The cost of work performed by District forces amounted to \$200,777.77.

Sewer construction was distributed throughout the District as indicated below.

| Section | Linear feet | Cost |
|--|-------------|--------------|
| 1. Within old city limits..... | 11,543.92 | \$133,408.95 |
| 2. County west of Rock Creek..... | 32,385.30 | 214,142.71 |
| 3. County east of Rock Creek..... | 21,062.51 | 224,082.06 |
| 4. County west of Anacostia River..... | 14,512.52 | 75,846.02 |
| 5. County east of Anacostia River..... | 5,434.00 | 22,581.67 |
| | 84,938.25 | 670,062.01 |

Of the above sewers, 56,519.83 linear feet were service sewers constructed at a cost of \$233,376.58. This class of sewers provided service for 954 houses, which averaged a length of 59.24 linear feet of sewer per house, at a unit cost of \$244.63.

On the occasion of the funeral of the late President Harding (August 6-9) Pennsylvania Avenue was barricaded with wire cable from the Peace Monument to Seventeenth Street. The cost of this roping was \$1,639.62, and to properly perform this work the services of over 50 men were required.

Incidental to the survey and construction work of this section, 174 assessment plats, showing construction of service sewers abutting assessable property, were forwarded to the assessor. Ten letters were forwarded to the health officer with notice of newly constructed service sewer abutting existing houses. Permits were granted for connecting 257 area drains to separate system sewers. These area drain connections were inspected and card record made of same. Two hundred and five record sheets, covering the work of the year, were made. Eighty-four measurement sheets were pre-

pared, covering payment, to contractors. Thirty and four-tenths miles of profile were run and plotted.

The fiscal year ended with work in progress on 10 contracts and with 13 contracts awarded on which no work had been performed.

During the year the only work done toward completing the system of interceptors of the sewage-disposal system was the construction of 2,858.30 linear feet of the upper Potomac interceptor, costing \$20,000, and progress on section 10 of the Rock Creek main interceptor, calling for 1,525.18 linear feet, and estimated to cost \$30,000.

As stated in last year's report, the activities of this section are seriously handicapped by the provisions of the organic act of the District, requiring that day-labor work be confined to those jobs estimated to cost \$1,000 or less. At the date of the passage of the act (June 11, 1878), owing to the then low cost of material and labor, it was possible to construct about 800 linear feet of sewer for \$1,000, while at the present time but 200 feet of sewer can be laid for this sum. To permit more elasticity in the functioning of this division, and coupled with the fact that construction appropriations for this division have increased from \$20,000 in 1878 to \$675,000 in 1924, recommendation has been made to have the above organic act amended so as to permit construction of sewers by day labor on work estimated to cost \$5,000 or less.

Handicaps against which this section is struggling are the lack of an additional assistant engineer to head one of the field parties and inspectors to properly supervise contract work; also lack of motor transportation. Three field machines require replacement, and to facilitate construction work a tractor and a 3½-ton truck are urgently needed.

OPERATION AND MAINTENANCE

The work of this section covers collecting rainfall data, recording flow in sewers, annual inspection of trunk sewers, cleaning of trunk sewers, cleaning and flushing of pipe sewers, basin cleaning and flushing, inspection and maintenance of sewage regulators, sumps, and tide gates, cleaning storm-water outlets, gravel basins, and inverted siphons, and investigating complaints. In addition, this section is in charge of the supervision of the sewer division motor transportation, care of greenhouse and lawns, the manufacture of basin tops, the activities of the field blacksmith, carpenter, and paint shops, and the removal of waste from the sewerage system by water to point of disposal. It also has charge of the rolling stock and floating equipment, including the marine railway, and such stock of material as it is necessary to carry in this division.

Data for run-off studies were gathered from the records of 4 automatic and 26 pot gauges, as well as 167 cup gauges located in manholes to determine the flow in trunk sewers during excessive storms. During the year the number of pot gauges for rainfall data was increased from 23 to 26, and the number of cup gauges in sewers was increased from 104 to 167. Experiments are now being conducted with a new type of automatic rain gauge which it is believed will give desired information regarding the different stages

of storms, and should same measure up to expectations it is hoped to install 7 additional similar gauges during the coming year.

During the fiscal year 1924 the District was visited by but one storm that caused overcharging of the sewerage system. This storm occurred June 18, 1924. The total precipitation was 0.59 inch, and during the period of greatest rainfall 0.27 inch fell in 15 minutes, or at the rate of 1.08 inches per hour. As a result of this storm the streets in the low area were flooded to some extent for a short time. The northwest boundary sewer was generally overcharged and the northeast boundary sewer was overcharged west of Florida Avenue and Quincy Street.

The annual inspection of trunk sewers covered 83.1 miles. Some minor repairs were found to be needed, but the principal defect was the accumulation of silt. This condition is serious, as during heavy storms of the summer trunk sewers and interceptors generally are more or less overcharged. As the result of increased appropriation for maintenance allowed for the fiscal year 1924 some progress was made in removing the deposits of silt and debris from these trunk sewers. The force engaged on this work consisted of 12 laborers, and in that this force has proven inadequate it is proposed to increase the force to 19 during the fiscal year 1925. A total of 4,525 cubic yards of silt was removed from the trunk sewers under this activity.

During the year 175,985 linear feet of pipe sewers were cleaned, as well as 149 basin connections; 182 house connections were located and 91 old sewers examined. In connection with this activity, 6,659 cubic feet of silt was removed. With the force engaged in this activity, consisting of one foreman and four laborers, it was found impossible to keep abreast of the increased demand; consequently on April 8, 1924, this force was doubled. With a view of removing the deposits that collect in pipe sewers 4,606,449 linear feet of sewers and 12,480 manholes were flushed. The condition of the pipe sewers during the fiscal year 1924 compares unfavorably with that of previous years, and the number of obstructed sewers showed an increase due to varying causes. Probably the greatest contributing cause is the inability of the street-cleaning division to sweep the streets because of parked automobiles. The streets are consequently flushed and all the refuse washed into the catch basins, and thence into the sewers, the grade of which is not sufficient in most cases to carry such refuse, causing them to silt up rapidly. Other contributing causes are the inadequate force employed and the rapid growth of the city. Flushing of sewers should be undertaken every 30 days, as was the case 10 years ago, but now, with the force engaged on this work, it requires over four months to complete a route. The force is handicapped by the obsolete method of stretching a hose from a fire hydrant across the driveway to a sewer manhole on the opposite side of the street, necessitating protection of hose from traffic by heavy wooden bridges. This system is both dangerous to the men engaged on the work and to vehicular traffic passing over the bridge. Consideration is being given to motorizing this activity in employing large tank trucks.

Under basin cleaning during the fiscal year 1924, 3,845.5 cubic yards of silt was removed from 13,559 city catch basins, and in the

county districts 3,642 cubic yards of silt was removed from 2,785 basins. Prior to February 28, 1924, the city basins were cleaned by a force employing ten 1-horse tank wagons. After the above date four 1-ton Ford trucks with garbage bodies were placed in this service in lieu of the horse-drawn vehicles. These trucks were operated at a saving of \$1.13 per cubic yard of silt removed, in spite of the fact that compensation of employees on this class of work was increased about 4 per cent by the new wage scale. The trucks also performed better service in that they increased the total work done by 16 per cent. A further saving directly caused by motorization, amounting to \$2,266.80 per annum, was made in changing the method used on the dump, impossible with horse-drawn wagons. At the beginning of the year the force engaged in cleaning county basins employed two 2-horse dump wagons and drivers, later increased to three wagons. These horse-drawn vehicles were replaced on October 24 by a 3½-ton truck, reducing the cost per cubic yard of silt removed by \$0.99 and accomplishing 54 per cent more work. Neither of these activities accomplish the results desired, and during the year 1925 it is proposed to augment the four city trucks by the addition of two similar trucks, and in the county it is proposed to employ an additional 3½-ton truck. Better service in this activity should result in less flooding of streets from stoppage of basins. In connection with this activity, 117 garage traps were cleaned at a cost of \$2,050.16, this cost being paid for by the applicants. As the result of garage-trap cleaning and other miscellaneous duties required by the basin-cleaning force, such as cleaning ink chambers at the Bureau of Engraving and Printing, cleaning sump at the Woodridge pumping station, and the cleaning and flushing of drains of the Highway Bridge, a third 3½-ton truck is greatly needed.

The necessity for basin flushing is to replace stagnant water in catch basins with fresh water and thereby prevent the emanation of offensive odors. At the time of flushing a small amount of oil is poured into the basin to prevent the breeding of mosquitoes. This is a summer activity and generally is conducted from May 15 to September 1. During the fiscal year 1924 this service was active from July 1 to September 15, when 7,389 basins were flushed, but owing to the excessive rains of the spring and summer of 1924 there was no need for this service between May 15 and June 30.

To obtain efficient service from the sewerage system, it is necessary to maintain a rigid inspection of the 83 tide gates, 17 sewage regulators, 121 sumps, and 5 screens as incorporated in the system. This service has been carried on by two skilled laborers with a one-horse wagon and driver. With this service motorized, as will be the case in 1925, it is anticipated that double the service will be rendered by this force.

Complaints received during the fiscal year 1924 showed an increase of nearly one-third over the previous year. There were received in all 1,914 such complaints, classified as follows: 108 public sewers obstructed, 829 obstructed basins, 52 cases of bad odors emanating from public sewers, 28 cases of dead animals in catch basins, 104 broken basin tops, 1 broken alley grate, 34 basin tops requiring resetting, 87 broken manhole covers, 14 lost articles in public sewers, 8

obstructed garage traps, 1 accident, 355 obstructed house laterals, and 239 miscellaneous complaints. The work of this service is now handled by one inspector, but is increasing to such an extent that an assistant will soon be required.

This section cooperates with the street-cleaning department in disposing of snow. In this connection, the sewer division stations inspectors at sewer manholes to prevent congestion by snow being dumped into same. During the three snowstorms experienced during the past winter, 3,742.5 cubic yards of snow was cleared from the streets and disposed of through the sewers.

In connection with the maintenance of shops and yards, new motor vehicles were put into service as follows: Five 1-ton dump trucks, one $3\frac{1}{2}$ -ton dump truck, 2 Ford roadsters, and 1 Ford sedan, making a total of 28 motor vehicles now under the supervision of this section. In order to provide suitable housing for these machines, two sections of garage, each composed of three units 24 by 36 feet, were constructed. These two sections are integral parts of a proposed garage that will be added to from time to time as requirements warrant. At present the District auto repair shop is primarily in charge of keeping motor vehicles in service; however, a small force is maintained at the pumping station for making minor repairs on these motor vehicles, as well as keeping the miscellaneous gasoline equipment in service.

Work in the various shops was carried on throughout the year. The carpenter shop constructed all forms necessary for sewer construction and made miscellaneous repairs to equipment. The paint shop repainted the greater part of the sewer division rolling stock, as well as the two tug boats, and in addition performed the necessary painting around the station. The field blacksmith shop kept all rolling stock in repair and made 3,125 manhole irons in addition to miscellaneous work. A total of 286 basin tops, including drip-stones and cheek blocks, were manufactured.

A much needed addition to the floating equipment was met with the construction of a small motor boat to be used for short hauls in the vicinity of the station. It is believed that this small tug can be used more economically for this class of work than the larger boat, which has been in service for a number of years.

The marine railway was in use from time to time throughout the year, and the revenue received from this source, together with rental for emergency pumps, amounted to \$1,067.

The outstanding need in the operation and maintenance section is motor transportation. In order to efficiently function, there should be provided, in addition to those to be provided during the fiscal year 1925, six light and three heavy trucks.

PUMPING SERVICE

The duties of this section consist in the maintenance and operation of the steam-driven main sewerage pumping station and the three electric-driven substations. In conjunction with this work there is maintained a machine shop and a blacksmith shop, and in addition to the operating forces employs electricians, steam fitters, screen operators, etc., together with a clerical and computing force to properly record and study the performance of the various stations.

The total pumpage at the various stations during the year was as follows:

| | Gallons |
|------------------------------|-------------------|
| Main station..... | 25, 238, 327, 500 |
| Poplar Point substation..... | 733, 918, 571 |
| Rock Creek substation..... | 448, 596, 000 |
| Woodridge substation..... | 18, 820, 757 |
| Total..... | 26, 445, 662, 828 |

Eliminating Rock Creek and Woodridge substations, which deliver their discharge to the main station, the above shows a mean total daily pumpage of 70,978,814 gallons. This is about 11 per cent greater than the water consumption of the District, attributable to infiltration of ground water and direct rainfall. The cost of pumping for the year was \$0.0052 per thousand gallons.

The total coal consumption at the main station during the fiscal year was 4,013.36 tons, of which about 8 per cent should be charged off to cover bunker loss, use by the incinerator and other miscellaneous uses.

There were removed from the sediment chamber 2,848 cubic yards of silt; 538 tons of debris were removed from the screens, pressed, and incinerated; 14.5 tons of floating debris were removed from the skimming tank and incinerated; 406 tons of ashes were removed from the boiler ash pits; and 40 tons of ashes were removed from the incinerator. All silt and ashes were deposited on the flats of the upper Anacostia River. Silt to the amount of 220 cubic yards was removed from the sediment chamber at Poplar Point substation and buried on District property.

This section has studied, in conjunction with experts from the Bureau of Mines, various possibilities looking toward the betterment of the plant, and especially methods of adapting the boilers to a cheaper grade of coal than that at present in use. The more expensive grade of coal as now used is admirably suited to the installation of the station, and its purchase has been justified as the result of a saving of 85 cents per ton, due to barge delivery rather than truck delivery. During the past winter the Chesapeake & Potomac Canal was damaged by floods to such an extent that it was not opened for traffic in the spring, thus depriving the sewer division of the benefit of a reduced haulage rate. It is not impossible that the canal will remain closed permanently, in which case a cheaper grade of coal than Georges Creek is more or less imperative. As a result of the above studies the following betterments have been accomplished: The economizer was thoroughly overhauled and repaired. New damper regulator was installed. A steam-recording gauge was installed. An airproof coating was applied to the outer walls of the boilers. There is now a tentative plan for installing a new type of baffle in the boilers.

The coal consumption for the year was slightly lowered, probably as a result of the above improvements, although data are insufficient to determine what part, if any, of this saving was due to the above actions.

Assurance has been received from the Bureau of Mines that their experts will conduct an early test on the operation of the sewer division steam plant, looking to further betterments.

Other betterments made at the main station were the installation of a new ventilating fan, the installation of a new motor on the coal crusher, the installation of an auxiliary pump on the drainage system of the station, and the installation of new metal sash to replace wooden window frames in the boiler room. In addition material was purchased for the erection of a gallery to be located in the sub-structure under and parallel to the steam lines.

There were two periods of extreme high water experienced in the Potomac River during the year. On March 31, 1924, the flow reached 197,500 second-feet, with the water elevation opposite the station 3.6 feet above District datum. The second and highest water occurred on May 13, with the flow in the Potomac reaching 316,250 second-feet. On this latter occasion the elevation of the water opposite the main station reached 5.25 feet above District datum. The minimum flow of the year occurred on December 23, 1923, with 987 second-feet. The mean flow throughout the year was 18,558 second-feet. The maximum range of the tide in the Anacostia River as recorded by automatic gauge was 8.5 feet. This record eliminates consideration of the two flood periods.

CLERICAL.

The work of this section includes the preparation of requisitions and vouchers, records of cost of day labor and contract construction, preparing pay rolls and pay roll analysis sheets, and material and equipment accounting.

Complete ledger control was maintained over all appropriations throughout the year and balances in the various appropriations were computed semimonthly and checked with the auditor. Financial statements were prepared monthly, and through a study of these statements the expenditures were kept within the limits allotted and an overobligation at the close of the year avoided. Daily record was kept of all issues of postage and street car transportation and detail monthly reports prepared.

Daily reports were prepared of construction work in progress on the sewerage system and the sewage-disposal system, the work of operation and maintenance of same, including sewerage pumping stations, shops and yards, and the supervision and inspection of work in progress by the various public-service corporations on underground construction.

Quarterly reports were submitted covering cost of operation, repairs, and mileage of motor vehicles. The number of vehicles assigned to this division increased from 18 in 1923 to 28 in 1924.

The annual inventory of the storeroom and store yard was taken and report of all expendable and nonexpendable material and equipment was forwarded to the auditor.

Sick leave granted the 57 statutory employees of the sewer division decreased from a total of 319½ days in 1923 to 232½ days in 1924, a reduction of 28 per cent.

In connection with the reclassification in the Government service, returns were submitted covering the 42 per diem employees of the sewer division.

A total of 71,133 reports and records were handled by this section during the fiscal year, while the total expenditures by the division totaled \$993,966.56.

J. B. GORDON,
Sanitary Engineer.

THE ASSISTANT ENGINEER COMMISSIONER.

REPORT OF MUNICIPAL GARAGE

WASHINGTON, D. C., *August 7, 1924.*

SIR: I have the honor to submit the following report on the municipal garage for the fiscal year ended June 30, 1924:

There were 40 automobiles maintained and kept in running order for the various departments of the District government by a labor and mechanical force of six men, whose duties were repairing automobiles, carrying mail from the city post office to the District Building, driving for the departments who were without automobiles or drivers allotted to their respective offices, gasing, oiling, washing cars at night, and also acting as watchmen.

The garage was kept open at all times, night and day, for urgent and necessary transportation.

Operating cost for the maintenance of the 40 automobiles, including gasoline, oil, tires, labor, and miscellaneous supplies, amounted to \$17,895.61, or an average of \$447.48 for each car, or \$0.0574 per mile.

The cost of repair parts used in the cars was \$2,460.41, or an average of \$61.51 for each car, or \$0.0151 per mile. Mileage of the 40 automobiles totaled 233,066 miles, or 5,826.6 miles per car.

The garage was constructed during the year 1917 for the housing of approximately 25 cars, sufficient floor space being allowed for the necessary repair work and cleaning of the cars. Additional cars purchased during the last seven years have increased the number at the garage to 44, which necessitates the storing of cars overnight in the aisles. Of this amount 9 automobiles are being stored at different places in the city, which is objectionable to the other departments housing these cars overnight.

It is recommended that action be taken for the relief of this congestion.

C. N. EMMONS,
Superintendent Municipal Garage.

TO THE SUPERINTENDENT, DISTRICT BUILDING.

REPORT OF BOARD FOR THE CONDEMNATION OF INSANITARY BUILDINGS

WASHINGTON, D. C., *August 25, 1924.*

GENTLEMEN: We have the honor to submit the following report for the year ended June 30, 1924—buildings on which action was taken in response to notices served under the act creating the Board

for the Condemnation of Insanitary Buildings during the year ended June 30, 1924.

| Number of buildings inspected | Ex- amined | Con- demned | Demol- ished | Re- paired | No action war- ranted | Value of repairs | Pending |
|-------------------------------|---------------|----------------|-----------------|---------------|-----------------------------|---------------------|---------|
| In streets..... | 174 | 143 | 116 | 93 | 7 | \$35,380 | 29 |
| In alleys..... | 221 | 202 | 65 | 60 | 4 | 24,000 | 22 |
| Total..... | 396 | 345 | 181 | 153 | 11 | 59,380 | 51 |

BUILDINGS ACTED UPON SINCE THE CREATION OF THE BOARD TO JUNE 30 1924

| | | | | | | | |
|-----------------|-------|-------|-------|-------|-------|-----------|-------|
| In streets..... | 4,308 | ----- | 1,961 | 1,545 | 672 | \$253,420 | ----- |
| In alleys..... | 5,068 | ----- | 1,003 | 739 | 3,040 | 53,955 | ----- |
| Total..... | 9,376 | ----- | 2,964 | 2,384 | 3,712 | 309,375 | ----- |

| | |
|---|-----------|
| Number of board meetings held during the year ended June 30, 1924..... | 25 |
| Number of 20-day preliminary notices served..... | 216 |
| Number of condemnation notices served..... | 213 |
| Number of condemnation cards affixed to buildings..... | 108 |
| Number of inspections and miscellaneous visits made in connection with the service of notices, repairs being made to buildings, and the demolishing and removal of condemned buildings..... | 1,490 |
| Estimated number of people required to secure other living quarters through action of the board..... | 905 |
| Estimated number of occupants of dilapidated and insanitary buildings benefited by repairs to buildings through action of the board..... | 1,071 |
| Estimated value of repairs made to buildings through action of the board during the year ended June 30, 1924..... | \$59,380 |
| Estimated value of repairs required through the board from July 1, 1917, to June 30, 1924..... | \$307,375 |

ALLEY LAW

There were two cases brought in the Supreme Court of the District of Columbia, *Norment v. Rudolph et al.*, and *Lockwood v. Rudolph et al.*, seeking to restrain the commissioners from enforcing the provisions of the alley law so far as concerns the property of the petitioners. An injunction was issued in each case, and the cases were appealed to the Court of Appeals. The *Norment* case was dismissed by consent of counsel, as the owners of the property had obtained an opportunity to sell advantageously. The *Lockwood* case, still pending in the Court of Appeals, No. 4084, is sufficient to test the questions raised as to the application of law.

The cases were tried below before Mr. Justice Bailey. The *Lockwood* case involved lots 45, 61, 26, reservation No. 10, improved by premises known as Nos. 218, 220, 224, 226, 228, 332, 334, 336, and 222 in Jackson Hall Alley, all of which are occupied as dwellings. Six of these houses front on an alley less than 30 feet wide and which does not run straight through the square. The alley is supplied with sewer, water main, and gas. Three of the houses front upon an alley that is less than 30 feet wide throughout its entire length and which does not run straight through the square but is supplied with sewer, water mains, and gas.

Judge Bailey ruled that there was nothing in the law which required a dwelling to be supplied with sewer and water and gas or

electric light, but that this provision applied only to the alleys, and the dwellings therefore were legal dwellings.

It is expected that this case will be argued before the Court of Appeals early in the October term.

Respectfully submitted.

R. A. WHEELER,
Major, Corps of Engineers, U. S. Army.
W. C. FOWLER,
Health Officer, District of Columbia.
JOHN W. OEHMANN,
Inspector of Buildings, District of Columbia.
A. S. J. ATKINSON,
Inspector for the Board of Condemnation
of Insanitary Buildings.

To the COMMISSIONERS OF THE DISTRICT OF COLUMBIA.

REPORT OF THE BOARD OF EXAMINERS OF STEAM ENGINEERS

WASHINGTON, D. C., August 12, 1924.

Sirs: The board of examiners of steam engineers have the honor to submit to you the report for the year ending June 30, 1924. The following table shows the work as it progressed during each month:

| | Meet- ings held | Applica- tions re- ceived | Applica- tions ap- proved | Applica- nts not com- petent | First class | Second class | Third class | Gas fired for propel- ling ma- chine | Spe- cial class | Steam auto- mobiles |
|-------------------|-----------------------|------------------------------------|------------------------------------|--|----------------|-----------------|----------------|---|-----------------------|---------------------------|
| 1923 | | | | | | | | | | |
| July..... | 4 | 18 | 15 | 3 | 1 | | 8 | 1 | 5 | |
| August..... | 5 | 19 | 8 | 11 | | | 4 | 2 | 1 | 1 |
| September..... | 4 | 11 | 3 | 8 | | | 2 | | 1 | |
| October..... | 4 | 15 | 5 | 10 | 1 | 1 | 2 | | 1 | |
| November..... | 5 | 22 | 8 | 14 | 1 | | 3 | 1 | 2 | 1 |
| December..... | 4 | 15 | 10 | 5 | 1 | 1 | 6 | | 2 | |
| 1924 | | | | | | | | | | |
| January..... | 4 | 16 | 8 | 8 | | 4 | 4 | | | |
| February..... | 4 | 16 | 7 | 9 | 1 | 1 | 3 | | 1 | 1 |
| March..... | 4 | 18 | 9 | 9 | | | 5 | 2 | 1 | 1 |
| April..... | 4 | 8 | 6 | 2 | 1 | | 3 | 1 | | 1 |
| May..... | 5 | 14 | 9 | 5 | 2 | | 3 | 1 | 2 | 1 |
| June..... | 4 | 27 | 19 | 8 | 2 | 1 | 7 | 7 | 2 | |
| Total..... | 51 | 199 | 107 | 92 | 10 | 8 | 50 | 15 | 18 | 6 |

In connection with the submission of our report, we beg to call your attention to the insignificant remuneration allowed the members of the board of steam engineers (\$150 per annum each). In view of the responsibility which this board is compelled to assume under the engineering act of 1887, we feel that more consideration should be shown by the bureau whose duties are to allot salaries for District employees, more particularly when our neighboring city of Baltimore allows \$1,500 a year for experts performing the same duty as we, and \$1,000 a year for a secretary. Our salaries should not be governed by the revenues derived from the issuance of steam engi-

neers' licenses, but should be based upon the protection of life and property afforded by proper examination of those who appear for license.

We believe, therefore, that with a spirit of equity and in face of the responsibility, the members of the board of steam engineers should be granted a compensation of not less than \$500 each per annum.

Very respectfully,

E. F. VERMILLION,
H. BOESCH,
W. I. EVANS,
Board of Steam Engineers.

To the COMMISSIONERS OF THE DISTRICT OF COLUMBIA.

REPORT OF THE WHARF COMMITTEE

WASHINGTON, August 18, 1924.

SIR: The wharf committee has the honor to submit the following report for the fiscal year ended June 30, 1924.

A statement giving the names of the tenants of water frontage under the control of the commissioners is on file in this office.

The leases of the Maryland, Delaware & Virginia Railway Co. and of Johnson & Wimsatt expired during the year. New Leases were entered into with the Baltimore & Virginia Steamboat Co., successors to the Maryland, Delaware & Virginia Railway Co., and with Johnson & Wimsatt. A lease was also entered into with the Powell Transportation Co. for a part of the wharf property formerly occupied by L. A. Clark & Son. This tenant has erected two very substantial and attractive concrete and steel warehouses on the site. Under the terms of the lease the commissioners reserve the right to order the removal of the buildings upon the expiration of the lease. Sixty-five per cent of the sugar transported to Washington is handled over this wharf. Potatoes, soap powder from Providence, R. I., and other commodities are shipped to this wharf. Heavy shipments of canned goods are expected this fall from lower river points.

The total revenue from wharf rentals amounted to \$33,190.70.

The total frontage of wharf property along Water Street is 9,275 linear feet, of which slightly over one-half is under Federal jurisdiction. The frontage between the south curb line of N Street south and Thirteenth Street west is under the control of the Commissioners of the District of Columbia and is used and occupied by the municipal fish market and wharves, the morgue, the harbor precinct, headquarters of the fire-boat company, the workhouse and sand wharves, all of which are municipal activities; and also by lumber and cordwood merchants, warehouse men, boathouses, and various steamboat companies operating passenger and freight steamers.

The water front along the Georgetown Channel is under private control, with the exception of the termini of streets. The space at

the foot of Thirty-first Street NW. between building lines is leased by the Cranford Co.

Along the Anacostia River the United States Navy Yard occupies the frontage on the city side between Second and Eleventh Streets SE. The sewage pumping station and yard occupies the frontage between First and Second Streets SE. The intake of the Capitol power plant is located at the foot of First Street SE. The only frontage along the Anacostia River under lease is that between the building lines of Q Street SE., where the Standard Oil Co. has a pipe line.

The elimination of unsightly sheds and buildings along the water front as leases expired was continued.

The new head house at the concrete wharf, known as Wharf 6, was completed and will be occupied by the harbor precinct in the fall.

On January 26, 1924, a disastrous fire occurred at the dock of the Norfolk & Washington Steamboat Co. The head house and the warehouses on the wharf were completely destroyed. Only a part of the wharf structure, however, was burned. At the time of the fire the weather was severely cold and because of the high winds the firemen experienced much difficulty in confining the fire to the Norfolk & Washington Dock. The steamer *Midland* was greatly damaged, most of her superstructure having been destroyed. Fortunately, sufficient insurance was obtained to rebuild the dock. Steel sheds have been erected in place of the wooden structures, a one-story head house of semifireproof material has been erected, and the decking of the wharf is now being surfaced with 2 inches of asphalt on metal lath. It is hoped that with these precautions there will be no repetition of the disastrous fires which have occurred at this wharf. During the period of reconstruction the Norfolk steamers have been using the lighthouse wharf. The offices of the company are temporarily quartered in the head house at Wharf 6.

During the past spring the Potomac River was at flood stage. On May 13, 1924, the high-water mark at Chain Bridge was 36 feet. Much damage was done to private properties along the river at Georgetown and at the agricultural experimental station on the Virginia shore. The high water, however, did not materially affect any of the structures along the Washington Channel.

The wharf committee desires to renew its recommendation of last year in regard to the permanent development and improvement of the water front of the Washington Channel between Washington Barracks and Fourteenth Street SW. It is hoped that funds may be secured from Congress during the next fiscal year for the preparation of a plan for the improvement of this water front.

Respectfully submitted.

ROLAND M. BRENNAN,
Chairman.

D. E. McCOMB,

H. R. LOHMAN,

Harbor Master.

To the ENGINEER COMMISSIONER.

REPORT OF SUPERINTENDENT OF THE DISTRICT BUILDING

WASHINGTON, *August 22, 1924.*

GENTLEMEN: I submit the following report on the care of the District Building for the fiscal year ended June 30, 1924:

POWER PLANT

The operation and maintenance of the power plant embraced the following:

Coal consumption totaled 2,014 tons, which averaged 10.87 per cent ash. Ashes totaling 577 cubic yards were removed at a cost of \$288.50. Total number of kilowatt hours generated was 527,824; of this there was used for lighting 383,633; for elevators, 45,110, and for motors, 99,181. The pneumatic-tube system was in operation 2,152 hours, the heating system 4,854 hours, the ventilating system 1,078 hours, and the cooling system 2,278 hours.

Repairs were made to No. 3 engine at a cost of \$989; new brass liners, rods, and valves were purchased for two vacuum pumps at a cost of \$85; one complete set of tubes was replaced in one 150-horsepower boiler at a cost of \$1,280; and one complete set of grate bars purchased for stoker at a cost of \$349.07. Three new air pumps were purchased at a cost of \$345.

It has always been difficult to heat the corner rooms of the District Building with our system of heating, which is indirect; to overcome this we removed two radiators from the corridor and placed them in the northeast corner room, second floor, which has proved very satisfactory. Due to an extension of quarters for use of the telephone exchange, fifth floor, it was necessary to supply additional heat; this also was taken care of by placing a radiator in these quarters, which are now equipped with both the direct and indirect systems of heating.

A lavatory was transferred from the suite occupied by the engineer commissioner to the corridor, fifth floor, east side, at a cost of \$263.63. Minor repairs were made to plumbing throughout the building.

It will probably be necessary within the present fiscal year to retube three 150-horsepower boilers at an approximate cost of \$4,000, and to replace the present air compressor which supplies air for the pneumatic-tube system.

WOODWORK AND PAINT SHOP

In addition to minor repairs throughout the District Building, including repairs to locks, doors, windows, etc., this department repainted walls and ceilings in 33 rooms at a cost of \$2,277.71; floors were refinished in 5 rooms at a cost of \$308.52. New partitions were built in the east and west corridors of the fifth floor. The telephone switchboard room was enlarged to provide more light and air for the operators. The counter in the tax collector's office was moved back 4 feet, and a new counter built at the north end of the room.

ELECTRICAL

Routine work including the care of elevators, guides, inclosures, motors, lights, and various electrical equipment was handled by this department. For the betterment of lighting conditions numerous changes were made in the lighting system.

The amount of current used by various departments for purposes other than lighting and which was charged to the maintenance of the District Building was:

| | Kilowatt hours |
|-----------------------------------|----------------|
| Police department print shop..... | 5, 235 |
| Health department..... | 90, 917 |
| Fire-alarm headquarters..... | 30, 633 |
| Electrical department shop..... | 760 |

The elevator-signal system and the main tablet boards are badly in need of replacement; switches and fuse bases are burned and useless, probably due to the greatly increased load placed upon them.

BLUE PRINT AND PHOTOGRAPH SHOP

There were 93,519 square feet of blue printing completed at a cost of \$2,795.13, and photographs totaling 1,101 completed at a cost of \$661.64.

Attention is again called to the congested condition of most of the departments and request that steps be taken to find office space outside the building for one or two departments to relieve this condition.

JOHN E. WOOD,
Captain, Corps of Engineers, U. S. Army,
Superintendent.

E. P. BROOKE,
Assistant Superintendent.

THE COMMISSIONERS OF THE
DISTRICT OF COLUMBIA.







